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AGRICULTURE

No. 1323

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## LIVESTOCK

### OFFICIALS RESPOND TO CRITICISM OF DAIRY INDUSTRY

Moscow SEL'SKAYA ZHIZN' in Russian 19 Feb 82 p 2

/Responses to article which appeared on page 2 of the 26 November 1981 issue of SEL'SKAYA ZHIZN'; translated and published in JPRS 79801/1313, 6 January 1982:  
"A Farm in the Suburbs"/

/Text/ In the article entitled "A Farm in the Suburbs" (SEL'SKAYA ZHIZN' issue of 26 November 1981), correct mention is made of the shortcomings noted in the development of the production-technical base of the dairy industry, in the acceptance and transporting of milk and in supplying the population with dairy products. The ministry has developed and presented the RSFSR Council of Ministers with proposals for raising the operational efficiency of the agroindustrial complex. These proposals call for measures for constructing interfarm departments for the production of skimmed milk and ZTsM /zamenitel' tsel'nogo moloka; whole milk substitute/, reducing the schedules for the mastering of enterprises newly placed in operation and ensuring their profitable operation. The plans call for a twofold increase in the production of dry skimmed milk and whole milk substitute through the more complete use for industrial processing of skimmed milk and buttermilk.

M. Anosov,  
Deputy Minister of the RSFSR  
Meat and Dairy Industry

The administration of the dairy industry of the USSR Ministry of the Meat and Dairy Industry has examined the article published in the newspaper SEL'SKAYA ZHIZN', entitled "A Farm in the Suburbs, and it reports as follows.

The planning institutes of the USSR Ministry of the Meat and Dairy Industry have developed and coordinated with the oblast (kray) planning committees plans for the development and disposition of dairy industry enterprises for the 1981-1985 period and with a long-range outlook up to 1990. These plans call for the production of whole milk products and products requiring large expenditures of milk (butter, cheese and dry and condensed canned milks to be concentrated in cities, mainly in rayon centers. Moreover, the plans call for small volumes of cream butter production to remain at municipal dairy plants.

Butter production at municipal dairy plants will require deliveries of cream from subordinate plants and compared to milk this will reduce the volume of transport operations by a factor of 10. In the process, solutions are being found for those

problems concerned with supplying the populations of oblast centers with fresh packaged butter, a task which is very difficult when carried out at remote plants. The buttermilk obtained from municipal dairy plants, which from a physiological standpoint has value as a secondary raw material, will be used for the production of whole milk products.

The Board of the USSR Ministry of the Meat and Dairy Industry has been assigned the task, during the first 6 months of 1982, with defining more precisely the plans for the development and disposition of enterprises of the meat and dairy industry, with emphasis being placed upon determining their optimum capabilities and reducing the radius of raw material deliveries for industrial processing.

The proposals contained in the article concerning the need for smoothing out the seasonal nature of milk procurements, creating large dairy farms around cities and increasing centralized milk shipments are considered to be vital ones. During the past two five-year plans, the plants have mastered the industrial production of whole milk substitutes, used for feeding to calves instead of natural milk. Prior to 1985, the production of ZTsM throughout the country as a whole will increase by twofold compared to 1980. The agricultural organizations must ensure greater control over the proper utilization of ZTsM in animal husbandry.

Yu. Neznanov,  
Deputy Chief of Uprmolprom

The department of Agriculture and Procurements of USSR Gosplan has examined the article entitled "A Farm in the Suburbs." It believes that vital questions have been raised in the article with regard to the proper disposition of the dairy industry and suburban farm specialization in the production of milk. An all-round solution for these questions is reflected in the draft food program as developed.

N. Borchenko,  
Chief of the Department of Agriculture  
and Procurements of USSR Gosplan

7026  
CSO: 1824/186

## REGIONAL DEVELOPMENT

### BAM ZONE FARMLAND VERY LIMITED

Moscow SEL'SKAYA ZHIZN' in Russian 17 Feb 82 p 2

[Article by V. Vorob'yev, director; Yu. Mikhaylov, head of the natural resources division; and A. Naprasnikov, senior staff scientist, all of the Institute of the Geography of Siberia and the Far East of the Siberian Department of the USSR Academy of Sciences, Irkutsk: "The BAM Farm Products Shop"]

[Text] There are quite a few opinions concerning the character and organizational structure of the agriculture that will exist in the future in the regions of the second Transsiberian Railroad which is under construction. Authors and teams of scientists have been contributing recommendations in which the areas suitable for agricultural development differ by an order of nearly 10. This is associated first of all with the fact that many specialists do not take into account the entire set of factors, in particular the natural peculiarities of the environment in which the agriculture of the BAM [Baykal-Amur Main Rail Line] is to function.

What in the end is the most advisable scale for agricultural development of land here? We will try to respond to this question above all from what might be called the positions of geography.

In an evaluation of natural conditions note must be taken of sharp differences in them from one region to another within the zone. Those differences have been reflected in the special hydrological and climatic regionalization of the zone prepared by our specialists. The structure of the surface, which is very complicated here, had to be taken into account in the regionalization. More than 80 percent of the zone is occupied by high mountain ranges and highly differentiated plateaus in which movement is difficult. The valleys are usually deeply incised, they have steep slopes and bottoms which have far too much moisture and contain maris and bogs. A correspondingly large difference is also observed in the distribution of heat, moisture and vegetation.

The barren and mountain regions, which occupy about 80 percent of the zone's entire area, are not suitable for cultivation at all.

The Muya-Kuanda and Upper Angara intermontane basins in Buryatskaya ASSR have relatively fair possibilities for development of agriculture. The first extends in the middle reaches of the Vitim and in the lower reaches of its tributaries

the Muya and Kuanda, and the latter in the basin of the Upper Angara. In the north of Chitinskaya Oblast there is the Upper Chara intermontane basin. It is a kind of oasis in the mountain taiga. In summer it is far warmer here than in the surrounding mountains. For example, the sum of air temperatures over the period with air temperatures above 10° is 1,200° in the Upper Chara basin, while it is three times less on top of the bald peaks. This indicator reaches 1,500° in the bottom of the Upper Angara and Muya-Kuanda basin, and only in the valleys of the Zeya, Selemzha, Bureya and Lower Amur does it rise to 2,000°.

As is well known, this aggregate temperature is one of the most important criteria in evaluating the adequacy of heat supplied to farm crops in a particular locality. If it is below 1,000-1,200°, then it is practically unfeasible to raise field crops or vegetables in the open. But in the BAM zone even this indicator needs to be used with great caution, since in some years it is far colder than usual here, and the danger of a frost in the summertime is practically ever-present.

The lower portions of the mountains and bottomlands of the basins have a better heat supply, but here there is only 350-400 mm of rainfall a year. Yet a substantial portion of the land in the basins has a substantial excess of moisture because of the runoff from the high mountain areas which have an excess of precipitation. So most of the area in the basins of the central portion of the BAM zone, the Zeya, Bureya and Lower Amur lowlands to the east, where all the land is concentrated, which are to some extent suitable for plowland and meadows, are in need of reclamation. Developing them will also require soil improvement measures on a large scale. Development can be done only on a selective basis, since a sizable portion of the basin consists of land which is not suitable for development as farmland because of the complicated relief, bogginess, poor soils or other reasons.

A sizable portion must be left in its natural state for reasons of natural conservation. Part is occupied by industrial and urban developments, transportation facilities and railroads. Public health zones, zones of vegetation, recreation zones and other zones will, of course, be created in the vicinity of agricultural enterprises and settlements. All of this will reduce the already rather modest land resources for agriculture in the BAM zone.

The smallest prospects for agricultural development are in the zone's central part--from the area along the shores of Lake Baykal in the west to Tynda in the east, where cultivation is possible only in the three intermontane basins already mentioned. In this area a total of about 90,000-100,000 hectares could be developed, less than a third of it as plowland. Within that, about 50,000 hectares could be developed in the Upper Angara basin, and of this no more than 4,000-5,000 as plowland. Somewhat larger opportunities for agricultural production exist in the Muya-Kuanda basin. The land resources of the Chara basin amount to only a few thousand hectares, about 1,000 of it suitable for plowland. Considerably better opportunities for putting new land to agricultural use exist in the cis-Baykal area (Predbaykal'ye), above all in the areas near the Lena and also in Amurskaya Oblast and Khabarovskiy Kray.



On the whole, taking into account all the positions in the BAM zone, there is justification for development of agriculture on 100,000-120,000 hectares, including 50,000-60,000 hectares as plowland. Together with the land now in use and farmland being withdrawn from use, this would make 200,000-300,000 hectares, including about 100,000 hectares of plowland.

What is the most beneficial way of using this local potential? It must be taken into account that natural conditions unfavorable for the conduct of agriculture limit the range of crops whose cultivation is feasible. Production costs here will be 2-3-fold greater than in the farming regions of Siberia and the Far East located to the south. That means that the choice should be confined to those products whose importation is clearly inefficient or impossible.

Calculations show that the volume of milk production can hardly exceed one-half of the requirement. The remainder will have to be made up with canned milk and powdered milk. More than half of the vegetables that like warm weather, such as tomatoes, cucumbers, eggplant and certain others would be raised locally in hot-houses. Animal feed resources would have to be created on natural meadows and pastures for the production of milk and dietetic meat. In all more than half of all the agricultural land would have to be devoted to them.

In the organization of agriculture there is also a need to study and utilize the experience in growing plants and raising animals acquired in various regions of the zone. There is very little of it in the central part, but it is more abundant in the eastern regions of the BAM.

Even under very difficult conditions, say in the Upper Chara basin, fair harvests of vegetables, potatoes and berries can be obtained on homestead plots by skillful gardeners. Skillful management can yield adequate hay yields on natural meadows in order to obtain good milk production from cows.

The development of private subsidiary farming will help to solve many important socioeconomic problems. In view of the specific nature of the production operations which are developing here, it is obvious that in the BAM zone there will be a sufficiency of available manpower, female manpower above all. These labor resources can be put to natural and efficient use in personal subsidiary farming.

And finally, the last thing we would like to mention. Nature is extremely vulnerable here. The soils, the vegetation and its other components possess low resistance to various types of human intervention. There is a danger everywhere for development of water and wind erosion and various phenomena related to freezing--thermokarst, the formation of cracks and heaves in the soil, bogginess, etc. Land use and the zone's development for agricultural production should be organized in such a way as to preserve a maximum area of natural landscapes, forests above all. That is why all efforts need to be concentrated on building a truly intensive agricultural production on a comparatively small area.

MEASURES OUTLINED FOR DEVELOPMENT OF RSFSR FOOD COMPLEX

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 1, Jan 82 pp 2-4

/Article by A. Kamenev, deputy chairman of the RSFSR State Planning Committee:  
"Russia's Food Complex"/

/Text/ Having developed the main directions in a rise in the people's well-being, the 26th CPSU Congress put the task of improving the population's supply with food products in the forefront. The food program, stressed Leonid Il'ich Brezhnev, should ensure a significant increase in agricultural output. It should more closely link agriculture with sectors engaged in the storage and processing of its products. And, of course, with trade. In other words, its object is to solve the problem of a continuous supply of products for the population in the shortest possible time.

It is precisely this overall approach that forms the basis for the development of planned assignments for the sectors of Russia's food complex for 1981-1985.

In accordance with the tasks advanced by the party during this five-year plan in the RSFSR provision is made for the further strengthening of the material and technical base of agriculture, of procurement organizations, of food industry sectors and of trade. As compared with the 1976-1980 level capital investments for the development of the sectors of the food complex are to be increased by 7.5 percent. A total of 917,400 tractors, 347,800 grain harvesting combines and 727,400 trucks will be allocated to agriculture and the sectors servicing it. The delivery of machinery and equipment, which will help to carry out overall mechanization of production processes on a wider scale, will be increased. The delivery of mineral fertilizers will be increased by 28.4 percent. Irrigated land put to use should total 1.6 million hectares and drained land, 1.8.

The republic's five-year plan envisages an increase in the share of capital investments for nonproduction construction and in the production part, for the strengthening of the fodder base, for the construction and reconstruction of storage facilities and processing enterprises, for overall mechanization and improvement in production technology.

In 1985 grain production in the RSFSR is to be increased to 136 million tons as compared to average annual 113.8 million tons during the 10th Five-Year Plan. The draft plan also points out the ways of implementation of what has been envisaged. In particular, it will be necessary to improve the structure of sown areas, increasing the share of clean fallow, to introduce new varieties and advanced technologies, to expand crops on irrigated and drained land and to apply more organic

and mineral fertilizers. In order to increase the output of scarce hulled products and fodder, in addition to this it is necessary to ensure an outstripping growth of the production of hulled and pulse crops, including peas. By 1985 the production of millet must be increased 1.9-fold as compared with the average annual level of the 10th Five-Year Plan, of buckwheat, more than doubled and of pulse crops, 2.2-fold, while the total growth of grain production must be increased 1.2-fold.

Principal attention in the activity of the RSFSR Ministry of Procurement will be given to an increase in the reliability of enterprise operation. As a result of construction, reconstruction and technical retooling mill capacities for more than 13,000 tons of grain processing in 24 hours are to be put into operation.

The mixed feed industry, whose capacities will be increased by 32 percent, will be developed further. Plans are made to build and reconstruct mixed feed plants of a total capacity of 29,000 tons of mixed feed in 24 hours. In order to reduce the shortage of crude protein, it is necessary to greatly increase the purchases of pulse crops and vitamin grass meal on kolkhozes and sovkhoses and to develop measures making it possible to increase the production of other protein fodder additives.

A more reliable base for a continuous acceptance of grain during the harvest is being established right now. During the five-year plan elevator capacities will be expanded by approximately 8 million tons. Drying capacities and the number of weighing and unloading devices for large-freight motor vehicles, motor vehicle trains and grain railroad cars will be increased. More attention will be given to grain transportation by water transport.

For the purpose of a more efficient expenditure of capital investments and improvement in the utilization of production capacities problems concerning the cooperation of the funds and material resources of republic ministries of procurement and agriculture are now being solved. In particular, joint construction of mixed feed plants and elevators is envisaged. This measure will make it possible by 1985 to fully meet the population's needs for high-grade flour and to increase the production of hulled products by 16 percent and of mixed feed, by 13 percent.

As is well known, the situation with potatoes has not been the best in the last 2 years. In order to rectify the situation, the production of seed stock for a prompt strain renovation and plantings with high reproduction seeds is to be increased to 110,000-120,000 tons. At the same time, it is necessary to improve the work of kolkhozes and sovkhoses in the zone of intensive potato growing and to organize there interfarm complexes and associations for the production, storage and processing of the "second bread." The output of complex mineral fertilizers for potatoes containing basic trace elements and of chlorine-free forms of potassium fertilizers (potassium sulfate and potassium magnesium sulfate) will be increased in the next few years. The application of mineral fertilizers per hectare of potato plantings is to be increased to 12-15 quintals of standard fertilizers. In order to reduce harvest losses and to ensure optimal storage conditions, accelerated construction of potato storage facilities in the systems of the RSFSR Ministry of Agriculture, the RSFSR Ministry of Trade and the RSFSR Union of Consumer Societies is envisaged. Furthermore, 3,598 stationary sorting centers and centers for the acceptance of tubers in places of production will be built.

As a result of the implementation of all these measures the production of the "second bread" should increase to 45.4 million tons by 1985 as compared with average annual 40.9 million tons during the past five-year plan.

An increase in the production of vegetables and an improvement in their assortment and quality are some of the important tasks now facing rural workers. By 1985 the purchases of vegetables on farms of all categories are to be brought up to 8.2 million tons, that is, an increase of 17 percent is to be ensured. The concentration of the production of basic volumes of commodity vegetables on 900 to 950 specialized vegetable growing farms and hothouse combines should greatly help to attain this. Storage facilities and shops for vegetable processing will be built and acceptance and transfer centers will be equipped in them.

Hothouse combines are to be provided in a planned manner with special types of mineral fertilizers, toxic chemicals, polyethylene and heat resistant films and the necessary equipment and machines. This will make it possible to greatly increase the efficiency of utilization of sheltered ground structures.

Plans have also been made to improve the provision of vegetable growing farms with specialized transport. For the purpose of an efficient utilization of vegetables the construction of vegetable storage facilities, plants and canning shops will be carried out, especially at large specialized farms and associations of the system of the RSFSR Ministry of Fruit and Vegetable Industry.

Scientific research institutions are called upon to expand work connected with the development of high-yielding promising new varieties for open and sheltered ground not inferior in their quality, yield and keeping quality to the best varieties of foreign selection. It is necessary to provide insurance seed stocks for open (semi-annual) and sheltered ground (annual).

As Leonid Il'ich Brezhnev stressed at the November (1981) Plenum of the CPSU Central Committee, it is also necessary to more fully utilize the capabilities of subsidiary farms. The initiative and enterprise of rayon and city party and Soviet bodies and industrial enterprises and associations in this matter must be supported in every possible way.

As a result of the implementation of the outlined measures the level of provision of the population with vegetables and melon crops will rise by 12 percent by the end of the five-year plan.

The problem of increase in the production of fruits and berries seems very urgent. In 1980 the population was provided with them only at the rate of 32.4 percent of the rational norm. This situation is largely due to the fact that in the winter of 1978-1979 perennial fruit plantings greatly suffered from frost. Therefore, in the very near future everything that is necessary must be done not only to restore the ruined areas of orchards, but to expand them as well.

Like vegetable growing industrial horticulture will be developed along the path of concentration of fruit, berry and grape production at specialized farms and interfarm enterprises. Commodity fruit production is to be concentrated mainly in regions of developed industrial horticulture with the most favorable natural conditions.



In order to fulfill the plans for state purchases of fruits, berries and grapes, it is necessary not only to raise the general level of agrotechnology, but to implement a number of specific measures as well. In particular, it will be necessary to establish 118,000 hectares of orchards, 36,000 hectares of berry patches and 100,000 hectares of vineyards on kolkhozes and state farms during this five-year plan. The varietal composition of fruit and berry plantings must be further improved and the proportion of stone fruit crops, berries, highly valuable winter apple and pear varieties and table grape varieties in plantings must be increased. In order to ensure the establishment of fruit and berry plantings on the necessary scale, it is necessary to increase the output of seedlings of fruit crops from 20 to 32.4 million in 1985, of berry seedlings, from 33 to 48 million and of strawberry seedlings, from 170 to 200 million annually. Plans are made to organize the production of grafted planting stock of grapes in the volume of the full need for the establishment of vineyards.

Flow technology of fruit harvesting with the use of container trucks will be introduced on all horticultural farms in Russia. Plans are made to expand the establishment of orchards and to organize 25 new horticultural sovkhozes on the slope land of mountain and piedmont regions of North Caucasus and other zones. Significant improvements should be attained in berry production in the Urals, Siberia and the Far East. In all, in the RSFSR the industrial processing of fruits, berries and grapes will be increased from 1.6 million tons in 1980 to 2.7 million tons in 1985.

At the same time, provision is made for an increase in the volumes of storage of fruits in fresh and freshly frozen form, for which fruit storage facilities for 442,000 tons will be put into operation. The annual volumes of fruit storage with the use of artificial cold, gas medium and automatic temperature and humidity control will increase to 996,000 tons by the end of the five-year plan.

In the final analysis all these measures should help to increase the per-capita consumption of fruits and berries.

The level of provision of the population with vegetable fat is very close to the norm recommended by science. Therefore, today the main task is to consolidate the success and to improve the quality of vegetable oil. In order to attain this, it is necessary to increase the production of the basic oil crop--sunflower seeds.

In order to fulfill the approved purchase plans, the gross output of sunflower seeds must be increased to 3.6 million tons in 1985, as compared with average annual 2.5 million tons during the 10th Five-Year Plan. Such growth will be attained through a sharp increase in the doses of organic and mineral fertilizers, wide introduction of promising regionalized varieties and shortening of harvesting time. Provision is made for the construction of elevators and warehouses for oil seeds in combination with drying facilities. During the 11th Five-Year Plan the capacities of extraction plants are to be increased by 1,810 tons of seed processing in 24 hours. This will make it possible to greatly increase the processing of oil seeds by the extraction method, which raises the output of oil and its quality.

Now let us discuss sugar. The population's provision with it has reached the recommended norm and has even exceeded it. Here too, however, there are problems and unsolved questions. The point is that a substantial part of the raw materials are

still received from the outside. In order to create high guarantees for a continuous supply for the population, it is necessary to greatly increase the production of sugar beets on the basis of the introduction of overall mechanization. It is necessary to improve the work of sugar beet seed growing sovkhozes and seed plants and to see to it that they provide all farms with seeds of the first category of the sowing standard. Plans are made to improve the situation at sugar plants and sugar beet receiving centers, including to practise sugar beet storage in clamps with the use of active ventilation and treatment with chemicals preventing spoilage and to increase hard-surface areas of clamp fields at receiving centers.

Animal husbandry is called a shock front in the accountability report of the CPSU Central Committee to the 26th party congress. As is well known, success in this sector is determined primarily by the state of the fodder base. Large-scale and serious work is also ahead here. In accordance with the needs of public and individual animal husbandry overall programs for an increase in the production and improvement in the quality of fodder have now been developed. In the RSFSR during the five-year plan fodder production per standard head should increase from 26.6 quintals of fodder units to 35. Such an increase is to be ensured primarily through a rise in the yield of fodder crops, expansion of repeated sowing and fundamental improvement in natural fodder land. Expansion of the sowing of pulse crops, lucerne, clover and rape, which are noted for a high content of protein, is also envisaged. The construction of modern storage facilities and the use of advanced technologies, including silage storage with chemical preservatives and active ventilation and pressing of hay, should help to sharply lower the losses and to improve the quality of fodder.

As already stated, an improvement in the meat supply for the population is one of the basic and most complex tasks. The state plan envisages an increase of 19 percent in the purchases of livestock and poultry by 1985 as compared with 1980. Calculations show that in the Russian Federation the total increase in meat production necessary for the fulfillment of the state assignment should be ensured at the rate of 17 percent by beef, 22 percent, by pork, 12 percent, by mutton and 23 percent, by poultry. Meat production is to be increased not only through the growth of stock, but mainly through a rise in the productivity of livestock and poultry. Therefore, along with a rise in the level of animal feeding special attention must be given to the further reconstruction of farms, overall mechanization of production processes, attainment of the planned capacity by animal husbandry complexes, construction of fattening areas and improvement in pedigree stockbreeding.

There is no doubt that subsidiary farms at industrial enterprises, fattening centers in the trade system and private subsidiary farms can and should participate in the solution of the problem under discussion. It is no coincidence that plans are made to increase the sale of hoglings to the population from 7.9 million head in 1980 to 8.6 million head in 1985. A total of 300 to 320 million head of 1-day old young poultry will be sold annually. Furthermore, fodder and land for livestock grazing will be allocated for the population.

The problem of further improvement in the utilization of all the products of livestock and poultry processing for food and fodder purposes and refinement of technological meat processing operations is now also very topical. It should also be kept in mind that the losses of live weight of livestock during transportation can be reduced through the use of specialized transport.

The implementation of these and other measures will make it possible to increase the per-capita consumption of meat.

Egg production on farms of all categories will be increased from 39.5 billion to 43 billion. The bulk of the increase is to be obtained in the system of the Administration of Poultry Raising Industry of the RSFSR Ministry of Agriculture. As a result, per-capita egg consumption will reach the optimal norm.

The per-capita consumption of fish and fish products is now close to the rational norm (21.8 kg with a norm of 23 kg). During the 11th Five-Year Plan the production of commodity fish in pond and lake facilities is to be increased 1.9-fold, including with the utilization of the water of thermal electric power stations, tripled. The indicated measures, along with the development of sea fishing, will make it possible to increase per-capita fish consumption to 28.1 kg in 1985. Exceeding the norm by 5 to 7 kg will make it possible to slightly compensate for the shortage of livestock products.

Finally, let us discuss milk. In accordance with the state plan milk purchases in the RSFSR should be increased by 16 percent during the five-year plan. Milk production will be increased by approximately the same percent. The increase in volumes is envisaged primarily through an increase in milk productivity. To be sure, this is the most rational way making it possible to save funds on the construction of expensive livestock barns.

Further improvement in pedigree work should contribute to the intensification of dairy farming. For this purpose plans are made to double the number of pedigree stock farms and to intensify their specialization. On a significant number of farms dairy farming will be transferred to the flow shop system, which, among other things, makes it possible to greatly improve herd reproduction. Capital investments in this sector are to be allocated primarily for overall farm mechanization.

In the dairy industry special attention is now paid to the reconstruction and technical retooling of existing enterprises and to the establishment of deficient capacities. As compared with the 10th Five-Year Plan the commissioning of the production capacities of the cheese making industry is increasing 2.1-fold and the capacities for the production of dry skim milk and whole milk substitutes, 1.4-fold and for the output of whole milk products, 1.2-fold. The production of dietetic whole milk baby food will be further developed in the next few years. The production of dry skim milk and whole milk substitutes will be increased 1.9-fold. The delivery of whole milk substitutes to kolkhozes and sovkhoses will make it possible by 1985 to release more than 2 million tons of milk and to allocate it for food purposes.

Right now the volumes of agricultural output make it possible to improve the population's supply of many types of foodstuffs. Continuing to increase the production of meat, milk, vegetables and fruits, it is necessary to improve their transportation, storage and processing. In particular, state and cooperative trade in foodstuffs must be improved and developed. The sale of packaged and wrapped goods in stores operating by the self-service method should be increased in retail trade. In public dining plans are made to transfer enterprises to industrial methods of preparation of food and semifinished products and to widely introduce advanced service forms. The establishment of large unified bases, warehouses and refrigerators and expansion of the volumes of package and container transport operations are envisaged in wholesale trade.

There is no doubt that a successful development of the sectors of Russia's food complex largely depends on the solution of the personnel problem and on the development of housing, cultural-general and road construction. It is no coincidence that capital investments in nonproduction construction will be increased approximately 1.6-fold.

At the recent Plenum of the CPSU Central Committee Comrade L. I. Brezhnev pointed out that a regular supply of high-quality food products for the population requires good work both on the part of agriculture and many other sectors. Large resources for production and nonproduction purposes are allocated for all the sectors of the food complex for the five-year plan. The task of planning and economic bodies and of the workers of every collective is to utilize them most productively and on this basis to increase the production of agricultural products, to improve their quality, to reduce losses at all stages--from production to consumption--and to improve the supply of food products for the population.

The 11th Five-Year Plan is an integral part of the food program, whose development and realization requires further large-scale work not only on the part of planning and agricultural bodies, but all the other sectors of the agroindustrial complex.

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## AGRO-ECONOMICS AND ORGANIZATION

### AUDITING DEFICIENCIES IN BELORUSSIAN MINISTRY OF AGRICULTURE

Minsk SEL'SKAYA GAZETA in Russian 2 Feb 82 p 1

/Article: "Serious Shortcomings in the Organization of Departmental Control in the Ministry of Agriculture for the BSSR"/

/Text/ In the resolution adopted by the BSSR Council of Ministers concerning shortcomings in departmental control in the BSSR Ministry of Agriculture, it is noted that the republic's Ministry of Agriculture is carrying out the measures aimed at improving control-auditing work in an unsatisfactory manner.

Just as in the past, serious shortcomings are being tolerated in the ministry's system in connection with the organization and implementation of departmental control. Documentary audits have not been carried out over an extended period of time at many enterprises and organizations and at individual facilities as many as 3-4 years have elapsed between audits.

In particular, poor control is being exercised over the financial-economic activities of the kolkhozes and sovkhozes. The low qualifications of auditors attached to the rayon agricultural administrations and also of members of kolkhoz auditing committees are causing serious shortcomings to develop in the organization of this work and they are lowering the quality and effectiveness of the audits, since incidents involving violations of state discipline, mismanagement, waste, shortages, embezzlement and misappropriations are not being uncovered and dealt with in a timely manner. During the course of audits, the reasons for such negative phenomena are not being analyzed thoroughly or corrected in the proper manner and the guilty parties are not always established. The agricultural administrations are not providing methodological direction for the activities of the auditing committees.

This is leading to a situation wherein the number of shortages and misappropriations of monetary funds and material values continues to increase at the kolkhozes and sovkhozes. In 1980 alone, there were 2,125 shortages and misappropriations valued at 777,000 rubles. On 1 January 1981, the indebtedness of guilty parties for shortages and misappropriations caused by them amounted to 1 million rubles.

The BSSR Ministry of Agriculture and also its subordinate trusts and administrations are not attaching proper importance to this sector of work. The official schedules do not provide for the required number of auditors for the carrying out of regular audits and each year 20-25 percent of the existing staff auditor positions remain

vacant. The leaders of some trusts, during the course of reducing their administrative staff, concentrated mainly on decreasing the number of auditor positions. In many instances, auditing service workers were used for performing accounting-bookkeeping work. In some areas, one auditor is required to audit the financial-economic activities at 13-20 farms each year. In the majority of instances, these audits are performed by one individual, in an incomplete manner and without the assistance of the required specialists.

In the ministry, the trusts and in other organs of agricultural control, proper attention is not being given to selecting the personnel for auditing work, to assigning highly skilled specialists to the auditing services or to raising their professional level. Only 11 percent of the auditors possess higher educations and 65 percent are young specialists who do not possess adequate practical work experience.

During the course of audits, almost no counter inspections are carried out on economic operations or on the reliability of bookkeeping documents or accounting and reporting data. In addition, no checks are carried out on the correct formation and use of the funds for economic stimulation and material incentives, on the status of labor norm setting and on the use of the wage fund. Very few inventories are being taken of the commodity stocks, control measurements of the volumes of work carried out are not being conducted and checks are not being conducted on the observance of state rates or on fulfillment of the party and government decisions with regard to decisively halting and eliminating incidents of eyewash and also strengthening the preservation of socialist property and eliminating those factors and conditions which give rise to misappropriation and mismanagement.

The BSSR Council of Ministers has directed the attention of the BSSR Minister of Agriculture, F.P. Sen'ko, to the extremely unsatisfactory organization of control-auditing work. For his irresponsible attitude towards the organization and implementation of departmental control and the related and serious shortcomings in the carrying out of control-auditing work, the Deputy Minister of Agriculture for the BSSR, A.A. Chernyavskiy, who is directly responsible for this sector of work, was given a reprimand.

The BSSR Ministry of Agriculture is tasked with implementing radical improvements in control-auditing work as follows:

...a thorough analysis must be carried out on the reasons for the present extremely unsatisfactory status of the control-auditing work and specific measures must be developed and implemented aimed at eliminating the shortcomings and raising the effectiveness of the audits and inspections carried out. The work of the departmental control services must be coordinated with the activities of other control organs;

...in the interest of ensuring high quality audits and inspections of the financial-economic activities of kolkhozes, sovkhoses and other subordinate enterprises, organizations and institutes, greater reliance must be placed upon receiving assistance in carrying out this work from labor collectives, social organizations and people's control groups and posts.

During audits, every attempt must be made to uncover and eliminate those factors which promote embezzlement and misappropriations and also incidents of waste and mismanagement must be halted in a decisive manner;

...audits of the financial-economic activities of subordinate enterprises, organizations and institutes must be carried out in a complete manner, with use being made of specialists who possess a fine knowledge of planning, the organization of agricultural production, labor organization and wages, financing and accounting. The materials of audits and inspections must be examined in a timely manner and effective measures undertaken in connection with each adverse fact uncovered;

...radical improvements must be carried out in the work concerned with selecting and training personnel for the control-auditing services, specialists must be assigned permanently to these services and measures must be undertaken to improve the skills of workers attached to the control-auditing system. Seminar-conferences must be conducted on a regular basis with this category of workers for the purpose of studying the work forms and methods and leading experience in the organization and conduct of audits and inspections. Workers assigned to the control-auditing service must be certified in the established manner;

...improvements must be carried out in the organization of methodological and practical management of control-auditing work at subordinate enterprises and organizations;

...in coordination with the BSSR Ministry of Finances, a statute must be prepared and approved governing the control-auditing service of the BSSR Ministry of Agriculture.

The proposal has been made to have the oblast executive committees intensify their control over the status of control-auditing work in the agricultural administrations and to examine periodically, during their meetings, those problems concerned with this work.

The recommendation has been made to have the BSSR Kolkhoz Council undertake measures aimed at improving the work of the auditing committees of kolkhozes and ensuring the election of individuals to these committees who are competent in auditing work and also to ensure the coordination of the work of the auditing committees of kolkhozes and the control-auditing services of the BSSR Ministry of Agriculture.

In the interest of ensuring the carrying out of annual audits at all sovkhoses subordinate to the BSSR Ministry of Agriculture and also at kolkhozes and other agricultural enterprises and organizations, the need is recognized for creating control-auditing departments in the agricultural administrations of oblast executive committees, with these departments being maintained by means of withholdings from the state agricultural enterprises, within the limits established for the ministry for appropriations required for maintaining the administrative apparatus.

The Ministry of Agriculture must introduce into the BSSR Council of Ministers appropriate proposals for reorganizing and strengthening the auditing system, with the proposals being coordinated with the Ministry of Finances.

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EXPERIENCE OF ESTONIAN, GEORGIAN AGROINDUSTRIAL ASSOCIATIONS

Economic Experiment

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 2, Feb 82 p 46

/Text/ The CPSU Central Committee and the Soviet Government are steadily pursuing a course for an increase in production efficiency and work quality. The agroindustrial complex now possesses a major economic and scientific-technical potential and will increase in the 1980's. However, the center of gravity now shifts to an increase in the return on the capital investments allocated for its development and to a more efficient utilization of all resources. This is determined primarily by the organized nature and responsible attitude of all workers to this matter. The decisions of the 26th party congress open up new opportunities for the initiative and creative work of central and local bodies, every production collective and every worker.

The economic experiment occupies an important place in the development of a system of measures for an increase in production efficiency and work quality.

The development of the integration process led practice to the need for the formation of agroindustrial associations on an interdepartmental basis. In accordance with the decree of the CPSU Central Committee and the USSR Council of Ministers "On Overall Mechanization and Chemicalization of Sugar Beet Cultivation and the Further Development of the Sugar Industry" agroindustrial associations for the production and processing of sugar beets were established. Experimental associations were established in Anninskiy Rayon, Voronezhskaya Oblast, the RSFSR, in Yampol'skiy Rayon, the Ukrainian SSR, and in Faleshtskiy Rayon, the Moldavian SSR.

In accordance with the decision of the USSR State Committee for Labor and Social Problems and of the Secretariat of the AUCCTU an experiment in providing incentives for the collectives of Korop and Senno flax plants and of the flax sowing farms of their raw material zones for the production of the maximum harvest and yield of high-quality long flax fiber is being conducted in the Ukrainian SSR and in the Belorussian SSR in 1981-1983.

A number of rayons in the Belorussian SSR and Kirovskaya Oblast have gone further. Agroindustrial associations for the production and processing of flax are being experimented here. Interdepartmental formations are also beginning to be established in other spheres of the agroindustrial complex.



A wide utilization of the Shchekino method in the sectors of the agroindustrial complex is one of the important potentials for an increase in labor productivity and production efficiency. This method is being experimentally tested on the country's sovkhozes.

A search for the most rational ways of improving the quality of repair and servicing of equipment and of the forms of its utilization is continuing. State-cooperative interfarm enterprises for the mechanization of agriculture were established on an experimental basis in Stavropol'skiy Kray and in Mogilevskaya, Kurgan-Tyubinskaya and other Oblasts.

Opening the new column "Economic Experiment," the editorial board invites the journal's readers to participate in a discussion of the raised problems.

Positive experience in an improvement in the system of management in the rayon link of the agroindustrial complex has been accumulated in the country. The agroindustrial associations in Talsinskiy Rayon, the Latvian SSR, in Vil'yandiskiy and Pyarnuskiy Rayons, the Estonian SSR and in Abashskiy Rayon, the Georgian SSR, can serve as an example. Their practical experience is discussed in the articles published below.

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Pyarnuskiy Rayon Agroindustrial Association

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 2, Feb 82 pp 46-51

/Article by Val'ter Yanovich Udam, first secretary of the Pyarnuskiy Rayon Committee of the Communist Party of Estonia: "Pyarnuskiy Rayon Agroindustrial Association: Experience and Prospects for Development"/

/Text/ How to attain closer links among partners in agroindustrial integration? In our opinion, an analysis of rayon agroindustrial associations, which have been in existence for several years, is of definite benefit. I had occasion to participate in the organization of two of them--Vil'yandiskiy and Pyarnuskiy.

The evaluation of the Vil'yandi experiment is well known. The rayon association showed good production results. During the 10th Five-Year Plan, as compared with the Ninth Five-Year Plan, the production of grain increased by 39 percent, of meat, by 35 percent and of milk, by 20 percent.

The Vil'yandi experiment was conducted in an economically developed rayon. The evaluation of land and of other management conditions there was much higher than the average republic level. How will an agroindustrial association prove itself in an economically weak rayon?

The agroindustrial association of Pyarnuskiy Rayon was established in January 1979. The association included all the rayon farms, as well as enterprises and organizations servicing agriculture and processing its output.

An increase in the rayon's economic potential, elimination of the lag on some farms, increase in the interest of service enterprises in the further development of agriculture, improvement in patronage work and so forth are the association's main objectives. An increase in the production of agricultural products is most closely connected with the solution of social and cultural-general problems.

The Pyarnuskiy Rayon Agroindustrial Association has been in operation 3 years. All this time was filled with stepped-up work. In the process it was necessary to overcome the effect of the year 1978, which was very complex in terms of weather conditions, and to organize livestock wintering. More than 1 meter of rain fell on the territory of Pyarnuskiy Rayon in 1978, mainly during the second half of the summer and during the period of harvest work. According to the estimates of scientists, almost 20 percent of the nutrients necessary for cereals were washed out from soil by surplus water.

Under these conditions the rayon party committee and the just established agroindustrial association considered the stabilization of the situation in agriculture the main task. The additional fodder grain received from the state, procurement of coniferous needles, yeasting of fodder and skillful utilization of the surplus hay and straw purchased from the population helped to satisfactorily conclude the livestock wintering period. The volume of spring field work increased by almost one-third. A prompt and high-quality performance of spring field operations in 1979 became a serious test for farms and the agroindustrial association. Now we can say that this test was passed successfully.

The tremendous vital force and advantages of the new system of management were manifested. All the association's workers came to the aid of farms. The enterprises of the rayon agricultural equipment association and forestry farms did a great deal and schools, local small enterprises and trade organizations did not remain aloof. All this contributed to the execution of the sowing campaign at the optimum time and at a high agrotechnical level. Fodder production almost doubled as compared with last year, which, true, was very complex. The grain harvest obtained was on the average republic level, which can also be considered quite satisfactory for our rayon.

The first successful steps inspired the association's managers and specialists to new achievements, added confidence in their strength and, finally, convinced them of the vitality of the new system of management. The following year, that is, 1980, also became successful in the work of the Pyarnu Agroindustrial Association. On the average, milk production per cow increased by 247 kg. For the first time it was possible to exceed the average republic indicator. In 1980 the average annual milk yield per cow was 3,577 kg. The rayon fulfilled the plan and the additional assignment for the sale of milk, meat and eggs to the state. The profit of farms increased by almost 3 million rubles. New advances were also made in the realization of the program for social development. Housing construction widely gained in scope. Several stores, restaurants, kindergartens and other social-cultural projects were put into operation.

With the establishment of the association an effective instrument of equalization of management conditions appeared. In January 1979 we approved the list of lagging farms--we have nine such farms. At the same time, profitability, the level of milk production per cow, the harvest of grain crops per hectare and other indicators were taken into consideration. For example, in 1979 production profitability on these nine farms comprised 8.9 percent and on other farms in the rayon, 28.5 percent.

The lag that has existed for more than 1 year is due to many objective and subjective reasons. Although the capital-labor ratio on the lagging farms rose during that time, nevertheless the differentiation in this indicator even increased. During the last 4 years of the five-year plan the lagging farms received fixed capital per hectare of cultivated land at the rate of 33 percent, whereas other farms, 40 percent, on the average. In 1979 the lagging farms had fixed capital worth 1,850 rubles per hectare of cultivated land, while other farms, worth 2,110 rubles. As a rule, on the lagging farms the situation with personnel is worse and there is a shortage of specialists, machine operators and livestock breeders. Working conditions are more difficult and wages are lower on them.

Plans for an elimination of the lag were developed with the help of the specialists of the agroindustrial association on all the nine farms in 1979. These plans pay special attention to the intensity of land use and increase in land fertility, because low harvests were the reasons for the general lag and high production costs of livestock products. Whereas during the Ninth Five-Year Plan the lagging farms obtained an average of 2,171 fodder units per hectare, on the average, in 1976-1978, even less.

Plans are made to increase the production of crop products per hectare of cultivated land to 2,700-3,000 fodder units in the next few years. The plans of measures envisage an increased utilization of organic fertilizers. The object is to apply 15 tons of organic fertilizers per hectare of cultivated land on the lagging farms by 1985 and then to increase them to 20 tons. In order to attain the outlined goal, a staff headed by R. Kirs, secretary of the rayon party committee, who manages the production of organic fertilizers in the rayon, was established at the association. Thus, the participation of all the members of the association, patrons and organizations in the rayon was ensured.

The staff did important work. During the first 2 years the production and utilization of organic fertilizers increased by more than 30 percent. The farms themselves engaged in extensive work and the enterprises of the system of the State Committee for Supply of Production Equipment for Agriculture, forestry farms and the Tootsi Production Association also worked a great deal. The operation of 20 columns for the production and delivery of organic fertilizers was organized by joint efforts in the winter of 1979/80. At the same time, forms of interfarm cooperation were used widely. The work of the Vyandra Region, where an interfarm working group or column was organized with the help of the local department of the State Committee for Supply of Production Equipment for Agriculture, can be cited as an example. According to the prepared schedule it worked alternately on three farms in the region.

We understand that as yet not all the potentials have been activated for an expansion of the production of organic fertilizers. For example, the Pyarnu Road Repair and Construction Administration and the Road Repair and Construction Administration No 1 have not yet made their contribution. The Pyarnu Kalur Fishing Kolkhoz is joining in this work very slowly. It is possible to increase the production of organic fertilizers in the Tootsi Production Association. During the construction of ponds for fish breeding peat for the production of organic fertilizers could be obtained as a by-product. There are also other possibilities. The organization of year-round production of organic fertilizers is an important potential. Work is now carried out mainly during the winter period, when we are able to use the equipment

of the enterprises of the rayon agricultural equipment association. During summer equipment is used in reclamation work. At the same time, the lagging farms are in an especially difficult situation. The association requested that republic bodies allocate one excavator and two or three tractors per region.

The problem of improving the system of material incentives based on the results of socialist competition has become especially acute in the last few years. On some farms the provided or promised bonuses were not paid. This in turn caused a turnover and shortage of personnel. The establishment of the agroindustrial association also opened up new possibilities in this area. For example, in 1979 more than 100,000 rubles were allocated to the lagging farms from the centralized fund of the agroindustrial association, including about 30,000 rubles to Pyarnyye, Tali and Syprus sovkhozes for the material incentive fund. These funds were used mainly for awarding bonuses to the best workers during the period of performance of seasonal work. The trouble of the lagging farms is that they do not cope with seasonal work (spring sowing campaign, fodder procurement period and harvesting campaign) on time.

The low level of management also involves a lag in social development. Owing to the shortage of funds, clubs, sports halls and other social and cultural projects remain unbuilt or unrepaired. As yet not enough state funds are planned for such measures. In addition, as a rule, these projects are not included in the plans of construction organizations. Work must be done by the economic method and with internal funds, but the lagging farms have very few of them. Furthermore, they do not have their own construction brigades. In this respect the situation on the Tystamaa Sovkhoz is very bad. It does not have a sports hall or a secondary school and, in fact, the building of the House of Culture is no longer suitable for use. Housing construction is carried out very poorly and, as a result, young people leave the rural area. The number of workers on the sovkhoz has been reduced by 125 in the last 3 years. The association took measures to change this situation. Several young specialists were sent to the farm and capital for the material incentive fund and more equipment, mineral fertilizers and mixed feed than before were allocated. An agreement on the reestablishment of the secondary school on Tystamaa was reached with the Estonian SSR Ministry of Education. Plans are made to build there a general-purpose hall for sports activities, dances, meetings and other activities. The comprehensive solution of social and economic problems should ensure a rapid advance of the farm in the next few years.

The reasons for the lag of individual farms are not the same. Some of them have stony and unproductive fields, the organization of transport and prompt provision of the shipment of products cause a great deal of trouble to other farms, the performance of seasonal operations is difficult in a number of places and so forth. However, the lag is due not only to reasons of this nature. The situation with discipline and labor organization is bad on some farms. Taking this into consideration, the rayon party committee and the agroindustrial association pay much attention to strengthening personnel on farms. For example, new directors now work on Tali, Pyarnu and Pyarnyye sovkhozes and a new chairman has been elected on the Khalinga Kolkhoz. Chief zootechnicians on Tali and Tystamaa sovkhozes, on the Kolkhoz imeni V. I. Lenin and on the Suureyye Kolkhoz have been replaced. Medium-level zootechnical personnel have also been strengthened on all the mentioned farms. New chief agronomists have begun working on Syprus and Tystamaa sovkhozes and on the Khalinga Kolkhoz and chief engineers, on the Pyarnyye Sovkhoz, on the Kolkhoz imeni V. I. Lenin and on the Suureyye Kolkhoz. All the lagging farms have been strengthened with personnel and medium-level specialists.



All the above-mentioned measures ensured a rapid development of the lagging farms. For example, in 1980 the Khalinga Kolkhoz obtained 36 quintals of grain crops per hectare. In the yield this is the second place in the rayon. In 2 years the milk yield per cow was increased by more than 1,000 kg and in 1980 the farm crossed the 4,000 kg line. Production profitability grew rapidly. In 1980 the net profit of the kolkhoz totaled 750,000 rubles. This is also the second highest indicator in the rayon. Thus, we see that on this farm the lag has been eliminated. High rates of development can be noted on all the nine lagging farms. One would wish to see a better attitude toward farm management on the Kyul'vaya Kolkhoz. The Suureyye Kolkhoz is also developing at slow rates.

On the whole, improvements in the equalization of the levels of development of farms are obvious. Whereas in 1978, on the average, less than 3,000 kg of milk per cow were produced on seven farms in the rayon, in 1979 such a situation remained on four farms. In 1980 in the rayon there was not a single farm where, on the average, less than 3,000 kg of milk per cow were produced. Such a result was obtained primarily through an increase in the yield of crops, rise in the standard of farming and strengthening of the fodder base. This is also the result of a well organized socialist competition.

The rates of growth of agricultural output on the lagging farms are almost twice as high as on other farms. This once again confirms that, skillfully utilizing the possibilities of the new form of management organization, even with comparatively small capital investments it is possible to obtain the necessary increase in output. The rayon party committee and the agroindustrial association skillfully utilized this situation.

At the same time, it should be noted that the new system of management did not hurt the interests of better farms. Distributing capital investments efficiently, we were able to meet the needs of all farms and to ensure expanded reproduction. To be sure, advanced farms allocate more funds from their income. However, the rapid development of the lagging farms stimulates and stirs up the development of agriculture throughout the rayon. No one wants to be a lagging farm. This in turn fills socialist competition with a new content. Pyarnuskiy Rayon fulfilled the 1980 socialist obligations for the sale of agricultural products to the state.

The agroindustrial association concentrates almost the entire economic potential in the rayon. The point is that Pyarnuskiy Rayon is primarily an agricultural region. Therefore, the development of agriculture determines the development of the rayon as a whole. Efficient relations and forms of cooperation among all the members of the association have been formulated. Everyone tries to make his contribution for the sake of common progress. The experience of the first years of work has shown that the new system of management also contains new opportunities for the development of the rayon as a whole and ensures a rapid, dynamic, proportional and diverse development of all the farms, enterprises and organizations forming part of the association. For example, the rayon's industrial, transport and construction organizations coped with the assignments of 1980 successfully, capturing advanced positions in the republic socialist competition.

Stepped-up assignments have been set for Pyarnuskiy Rayon and the agroindustrial association during the 11th Five-Year Plan. Rates of growth exceeding the average level and higher assignments have been planned. If we take into consideration

that in the last few years in the basic indicators Pyarnuskiy Rayon has attained the average republic level or a level close to it, it is not difficult to understand how stepped-up the forthcoming period will be. For example, as compared with the 1980 assignment, in 1981 the sale of meat to the state increased by 1,500 tons and of milk, by almost 5,000 tons. Reliable prerequisites for the fulfillment of the assignment have been created. Much more locally produced fodder was procured for the winter period than last year. There are barns, herd and appropriate cadres of livestock breeders. Now everything depends on how farms and the agroindustrial association will be able to utilize existing material and spiritual resources.

The rayon party committee tries to improve the method of work and not to deputize managers in their activity and concentrates attention on an increase in the initiative and militancy of the party organizations of farms and enterprises and on the development of the creative principle in the work of secretaries of party organizations. Work with managerial personnel and medium-level specialists, organization of socialist competition and formation of a sense of high responsibility of everyone and of the labor collective as a whole are on the agenda. There is no doubt that agricultural workers in Pyarnuskiy Rayon and all labor collectives will make their worthy contribution to the cause of our country's development.

The labor collectives of Pyarnuskiy Rayon unanimously approved the decisions of the 26th party congress and the accountability report of the CPSU Central Committee presented by Comrade L. I. Brezhnev. We, agricultural workers, are glad that the congress paid much attention to the sectors of the agroindustrial complex. Large capital investments are allocated for the development of agriculture during the new five-year plan. At the same time, however, the congress stressed that expenditures in agriculture grew more rapidly than output. Therefore, an effective utilization of capital investments is of especially great importance during the forthcoming period. Our experience shows that the rayon agroindustrial association is precisely the form of management that opens up great opportunities for the solution of this problem.

The 26th CPSU Congress noted that work was being done on the preparation of the food program. This program will link together problems connected with the development of agriculture and industrial sectors servicing it and with the procurement, storage, transportation and processing of agricultural products, as well as problems connected with the development of the food industry and trade in foodstuffs. This agroindustrial complex will be planned, financed and managed as a single whole, ensuring high final results. We also feel the urgency of and pressing need for the solution of this problem. Now a builder often is interested in constructing a building at a higher cost and enterprises of the system of the State Committee for Supply of Production Equipment for Agriculture keep track of the money turnover. All the enterprises and organizations forming part of the complex should be really interested in the final result--increase in the production of milk, meat and other products of agriculture.

With the establishment of the Pyarnuskiy Rayon Agroindustrial Association an attempt was made to unify all the enumerated links on a rayon level and in some measure to make all association members responsible for the production of final products. Financial and moral incentives were developed and introduced. We can now say with confidence that we have been able to concentrate the rayon's entire

economic and social potential for the sake of the common goal. The enterprises of the system of the State Committee for Supply of Production Equipment for Agriculture and builders began to give more thought to how to better service and help farms and relations with enterprises processing agricultural products improved. Positive shifts can also be noted in the work of trade organizations. Forestry farms and the Pyarnu Kalur Fishing Kolkhoz made their initial contribution. Some changes, which we introduced as compared with the Vil'yandiskiy Rayon Association, fully justified themselves under the conditions of Pyarnuskiy Rayon. In such form we can offer our experience to other agricultural rayons. Representatives of party, Soviet and agricultural bodies, as well as managers and specialists of farms of all the republic's rayons, became acquainted with our experiment on the spot. All of them reached the conclusion that our system of management should also be introduced in other rayons. Delegations and representatives from many fraternal republics, as well as workers of central bodies and departments of the USSR, visited us. The association's work received a positive evaluation.

At the same time, there are also complications in the matter of dissemination of our experience. In particular, on a rayon level it will be difficult to improve the system of management as long as republic ministries and departments work separately. In the rayon we unify all enterprises into a single whole, but workers of superior departments and ministries find that it is also possible to work in the old way. We are glad to note that the rayon influence predominates. All members of the agroindustrial association actively participate in its work. This once again confirms the vitality of the new system.

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#### Abashskiy Rayon Agricultural Association

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 2, Feb 82 pp 51-56

[Article by Valeriy Iosifovich Khutsishvili, chairman of the Abashskiy Rayon Agricultural Production Association of the Georgian SSR: "Abasha Experiment: Some Results"]

[Text] Only a few years ago Abashskiy Rayon in all the basic indicators of agricultural production was considered one of the most lagging in the republic. It is located in the lowest part of the water-logged Kolkhida Lowland. The extremely unstable weather, overabundant precipitation, which sometimes made the fields impassable by tractors, and frequent strong winds gave the rayon a bad reputation and, seemingly, predetermined its eternal fate of an economically poorly developed region with minimal opportunities for agricultural development. It should be stated openly that in the republic it was believed that in Abasha it was impossible to raise the level of agriculture and to attain high production results. However, practice disproved this established opinion.

Abasha workers attained high results, about which previously it was even impossible to dream. Substantial measures to increase the production of livestock and crop products have been implemented in the last few years. Suffice it to note that, as compared with 1972, the gross output of corn grain increased 2.7-fold, of vegetable crops, 14-fold, of tea, 1.5-fold, of meat, 1.6-fold and of milk, 2-fold.

The total volumes of state purchases of agricultural products increased accordingly, that is, of corn, 4.3-fold, of vegetables, 6.5-fold, of tea, 1.5-fold, of meat, 1.8-fold and of milk, 2.8-fold. The yield of agricultural crops rose. Whereas from 1940 through 1973 the average yield of corn for grain did not exceed 14 quintals per hectare, in 1980 more than 50 quintals per hectare were obtained. The wages of the sector's workers increased considerably.

The rural workers of Abashskiy Rayon honorably fulfilled the plans and socialist obligations undertaken by them for 1980 and for the five-year plan as a whole. The five-year plan for the production of corn for grain was overfulfilled by 24 percent and the procurement plan, more than twofold. The five-year plan for meat production was fulfilled 121 percent and the plan for meat procurement, 128 percent; for milk, 107 and 123 percent and for vegetables, 162 and 177 percent respectively.

The plans for the production and procurement of fruit, high-quality tea leaves, essential oil raw materials, silk cocoons and all types of fodder were also realized with a great excess. Owing to the introduction of new forms of material and moral incentives, production efficiency and labor productivity increased (very substantially) and the quality of output improved. In 1980 almost 11 times more grain was allocated in kind in the form of additional wages from the gross corn harvest than in 1972. At the same time, the volume of grain sale to the state was also increased.

The firm fodder base brought about a sharp increase in the production of livestock products. In 1980, as compared with 1972, the procurement of meat increased by 1,054 tons and of milk, by 2,933 tons. During those years the average milk yield per cow in the rayon increased by 1,005 kg. The public stock of large-horned cattle and hogs grew. In 1980 twice as much milk and meat were produced per 100 hectares of agricultural land than in 1972.

The material and technical base was strengthened. In 1980, as compared with 1975, the value of fixed productive capital for agricultural purposes on the rayon's kolkhozes and sovkhoses almost doubled. The power-worker ratio rose.

As a result of the work done by the rayon's party, Soviet and agricultural bodies, beginning in 1973 for 8 years in succession previously backward Abashskiy Rayon was awarded the challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Central Committee of the Komsomol for the attainment of high results in the all-Union socialist competition.

The following question arises: How was it possible in such a comparatively short period to fundamentally change the situation, to create firm prerequisites for a gradual development of all agricultural production sectors and to steadily raise the volumes of production and procurement of crop and livestock products and the material well-being of rural workers?

We must discuss at greater length the aspects and results of our research that, in combination with the effort of party, state and production discipline in all the links of agricultural production, greatly predetermined our success in the increase in the efficiency of public production, in the growth of the yield from land and in the involvement of the absolute majority of the rural population in socially useful labor.



The Abasha Production Association was established on an experimental basis in 1974. A number of fundamental provisions served as the prerequisite for the appearance of this single body for the management of agricultural production in the rayon.

Many party documents pointed out the need to improve the management of agricultural production and to refine it as applied to the new requirements. Without a reorganization of production management it is impossible to effectively utilize such large capital investments allocated to the sector. For a rapid development of agriculture and increase in production efficiency the party considers the further specialization and concentration of production a top-priority task.

For many years the rayon link for the management of the agricultural sector received little attention on the part of superior bodies, scientists and specialists, who did not spare efforts on the performance of all possible experiments if this concerned central management bodies and established all kinds of trusts and associations. Sometimes this led to an unsubstantiated increase in staffs and each time, seemingly, there were convincing arguments for this. In practice, it turned out that weak, incompetent management of agriculture unable to be practically, as well as legally, responsible for the state of the sector as a whole, continued to exist in the rayon, that is, where material wealth is created directly. In fact, some sovkhoses remained outside the influence of these managements and enterprises and organizations servicing agriculture were separated from basic production. The latter were not interested in increasing the efficiency of production of agricultural products. Moreover, the mentioned services often were given incentives even for the fulfillment of intradepartmental planned assignments, whereas the rayons where they were located at times did not cope with the plans for the production and procurement of agricultural products. In principle, the organic unity in the management of rayon agriculture was disrupted.

Under these conditions, in practice, many fundamental problems connected with the development of rayon agriculture were solved without a comprehensive study, appropriate economic analysis and scientific forecasting of the possible return on the implemented measures.

Analyzing the situation created on sovkhoses and kolkhoses in the rayon and the opinion of rural rayon party committees, specialists, scientists and practical workers of the sector, we drew a specific conclusion: At the present stage of scientific and technical progress characterized by many qualitative and quantitative changes in agricultural production, by an all-embracing process of intensification in the sector and by its transfer to an industrial basis an improvement in the rayon link of management of agriculture permits no further delay. The lack of correspondence between dynamically developing production and the form of rayon management of the sector that has outlived itself restrains the process of this development and hampers a more rational and efficient utilization of land and of labor, material-technical and financial resources.

The Abasha Association initially was organized on the basis of enterprises and organizations subordinate to the administration of agriculture, the rayon department of the Georgian Agricultural Equipment Association, the administration of water resources and land reclamation, the state seed inspectorate and the stations for the control of animal diseases, which functioned in the rayon. The establishment

in the rayon of a single body capable of skillfully managing agriculture and of being responsible from start to finish for an increase in the production and procurement of agricultural products, for the level of production services for kolkhozes and sovkhoses, for an elimination of the lack of interdepartmental coordination on a rayon scale and for an increase in the interest of participants in the final result of labor--this, in our opinion, is the basic goal of the establishment of this association.

After receiving control figures from republic bodies, the association fully undertakes the functions of planning and distribution of financial and material-technical resources, staffing, control and general management of kolkhozes, sovkhoses and interfarm organizations. Essentially, a mobile competent staff for the management of agriculture was created. It is able to implement agronomic policy common for the entire rayon, which is directed toward a rise in the agricultural background and the derivation of the maximum yield from land and material and labor resources. The fact that service enterprises and organizations in the rayon closely coordinated their activity with the interests of agricultural development was also an important achievement in this direction. The managers of these services, which, at the same time, are deputy chairmen of the association, increased their responsibility for the work done. In this connection of importance is also the fact that the association and the mentioned services subordinate to it have a single party organization.

Succinctly and concisely, the advantages of the indicated association for the management of agriculture in Abashskiy Rayon over ordinary rayon management of agriculture are as follows:

Intrarayon planning is solved in an optimal way, which makes it possible to accelerate the process of specialization and concentration of agricultural production and to set more realistic tasks for the sector's further development.

The concentration of financial and material-technical resources in the hands of a rayon body of management and their distribution are carried out with due regard for the solution of specific economic problems. A wide maneuvering of the monetary, material-technical and labor resources of kolkhozes and sovkhoses has become a norm of management in the association.

On a rayon scale a great deal has been done to overcome the lack of interdepartmental coordination. The final results of labor and the degree of fulfillment of production plans by kolkhozes and sovkhoses in the rayon increasingly become the criteria of evaluation of the activity of service organizations.

Personnel problems are solved better and skilled specialists concentrate on the decisive sections of agricultural production. The managerial staff has become the forge of personnel and the process of formation of specialists and improvement in their skills have been accelerated considerably.

Production captains--managers of kolkhozes, sovkhoses and interfarm enterprises--are relieved of the need to constantly turn to republic main administrations with all problems, because the association solves them on the spot and with sufficient efficiency. At the same time, the functions of control over the activity of farms and services of subordinate associations have been strengthened.

The association's managerial staff is a mobile operative body, to which the work of its divisions on specific short- and long-term programs, as well as the information service system, which is in the process of formation and improvement, contributes to a large extent.

Operative management of the association's economic production activity is carried out by the council board. The board is headed by a chairman, who, at the same time, is chairman of the council and of the association. A separate managerial staff was created on the basis of cost accounting for the implementation of the decisions of the council and of the board, as well as for the daily management of the association. It is maintained at the expense of deductions at the rate of 1.2 percent from the sales volume--for kolkhozes, sovkhoses, the rayon department of the Georgian SSR State Committee for Supply of Production Equipment for Agriculture and the tea factory; from the volume of performed work--for construction-installation and reclamation organizations; from the planned trade turnover--for the grain product combine.

The association coordinates the activity of all participants regardless of their departmental subordination and follows a single approach to the realization of the program for the economic and social development of the rayon's entire agroindustrial complex. A fuller combination of sectorial and territorial principles of management of agriculture and sectors associated with it is ensured.

Favorable conditions for an improvement in mutual relations among participants in the agroindustrial complex in Abashskiy Rayon are created under the new form of management of agriculture. Coordinating the activity, the association correlates the current and long-term production programs of service enterprises and organizations with the solution of top-priority problems facing agriculture. For the purpose of a better utilization of manpower, equipment and other means of production the association maneuvers them widely. The rendering of mutual financial and other help to farms is practised in the association.

The association has the right to establish centralized funds for the development and strengthening of production, social and cultural measures and housing construction, material incentives and mutual assistance.

Centralized funds are created for the purpose of equalizing the economic conditions of management, strengthening the material and technical base and improving cultural-general services and material incentives. According to the statute they are formed from the profit (net income) of kolkhozes, sovkhoses and interfarm enterprises with due regard for the quantity and quality of cultivated land at their disposal and from the contributions of other members of the association at the rate of up to 20 percent of the derived profit.

Centralized funds are allocated for the development of production specialization and concentration on an interfarm basis, assistance to individual farms and enterprises, material incentives for labor collectives of enterprises and organizations of agriculture and all other sectors of the rayon's agroindustrial complex and increase in their interest in the final results of social labor. According to production need and economic expediency the association distributes depreciation funds and circulating and other capital among its members.

Material and technical supply is centralized, which makes it possible to distribute resources with greater substantiation and with due regard for the interests of development of the entire association. It regulates the utilization of the capital investments of members and of the credits of the USSR State Bank, assigning them primarily for the solution of the most important problems.

When long-term and current plans for agricultural production are worked out, the association introduces amendments in their production specialization in the interest of all participants with due regard for the natural and economic conditions of every farm, which has already produced positive results.

A centralized performance by the association of the function of client of planning estimates and capital construction also contributes to an improvement in mutual relations among members.

The fact that the association's managerial staff was given more extensive rights and duties as compared with the rayon administration of agriculture increased its role and responsibility for the state of development of the rayon's entire agroindustrial complex.

As practice suggests, additional measures must be implemented at the second stage of the experiment in Abashskiy Rayon. First of all, the Abasha Agroindustrial Production Association should be given full rights of an interdepartmental body of management and responsibility for the results of activity of all association members--kolkhozes, sovkhoses and supply, procurement and service enterprises and organizations located on the rayon territory. On the whole, state plans for the sale of output and performance of operations for all enterprises and organizations forming part of the association are brought to the attention of the association. All material and technical supply stocks and all sources of financing and ceilings of bank credit are concentrated in it. The association has the right to submit proposals for the appointment and dismissal of managerial personnel in accordance with the established procedure. A staff ensuring planning, financing, the fulfillment of all the established plans for the sale of output, the performance of planned operations and services and the recording and control of the financial production activity of all members is created in the agroindustrial association.

The entire activity and the very existence of a qualitatively new body for the management of agriculture, which, in our opinion, the Abasha Agroindustrial Production Association is, are subordinate to the solution of a global, fundamentally important problem, that is, to have one master on the land, who would be fully responsible for careful management of the sector and a systematic increase in the fertility of land--the basic means of agricultural production. This noble task performed within the framework of centralized rayon management, at the same time, does not rule out a flexible policy of management of the enterprises and organizations forming part of the association, which retain legal and economic independence.

Finally, we deeply believe that the reassuring results of the association's activity make it advisable to right now embark on the establishment of centralized funds on a republic scale. In the final analysis, this will make it possible to activate the financial resources, which lie as dead capital, of the rayons, regions, ministries and departments characterized by the management of highly profitable industries and to allocate them for the equalization of the economic potentials of the



rayons that, owing to soil and climatic conditions, still have a significant number of weak kolkhozes and sovkhozes not capable of solving urgent problems connected with the sector's specialization and concentration and with the modernization and efficient utilization of technical facilities and to attain a sharp advance of agricultural production and a rise in the material well-being and cultural level of rural workers.

During the 6-year period of the association's activity the solution of all the theoretical problems connected with the association's establishment was confirmed by practice and proved its value in reality. With the association's establishment remarkable opportunities opened up for the further concentration and specialization of production on the basis of interfarm cooperation and local initiative expanded widely.

A careful analysis of the management of the public sector and a profound, scientific examination of the problem led us to the conclusion that it was necessary to implement measures for the introduction of bold, new forms of material incentives for rural workers into the rayon's agricultural production, primarily into corn growing. The essence of these measures developed in 1973 and approved by the Central Committee of the Communist Party of Georgia was that, in addition to basic wages, the direct producer receives the following in the form of bonuses in kind: 10 percent of the produced planned output and 70 percent of the above-plan output. The extensive organizational and political work of the rayon party organization contributed to their realization to a considerable extent.

The positive results from the introduction of the material incentive system gave us reason to extend it to all the other sectors of agricultural production in the rayon and created practical prerequisites for a sharp advance of animal husbandry. In social terms the increase in the labor and political activity of the rayon's population, strengthening of socialist discipline in all the links of its economy and marked improvement in the moral and psychological climate in labor collectives were the results of the introduction of the new material incentive system into practice.

All this taken together enabled the rayon's party, Soviet and agricultural bodies to begin the practical implementation of the second stage in the advance of its economy on the basis of a wide introduction of overall mechanization into agricultural production. Last year more than 7,000 hectares of corn and 1,500 hectares of soybeans were cultivated according to the new industrial technology. This made it possible to displace manual labor almost completely, in connection with which the appropriate form of material incentives for machine operators was put to use.

Another, in our opinion, important problem should also be discussed. It concerns cooperation between public farms and the rayon's population in meat production.

Under the conditions of Abashskiy Rayon and, moreover, throughout the Georgian SSR to this day the private plots of the rural population play an important role in the matter of provision of workers with crop and livestock products. In the rayon at present there are several experimental variants of business cooperation between the population and the public sector.

In one case a sovkhos worker, a kolkhoz member, a pensioner and other individuals living on a farm territory raise, fatten and deliver their own livestock, that is, hogs, at the state purchase price to the farm and, in addition, receive 4 kg of mixed feed per kg of meat (in live weight) at prices established by the state. The existence of this variant is due to the fact that at this stage the rayon's public farms as yet are unable to provide young animals for the entire population. Reproducers, each for 100 sows, are now built by the economic method on almost all farms, which subsequently will make it possible to fully provide the population with young animals.

The second variant. A farm issues several hoglings of weaning age (no more than 15 to 20 head) and 4 kg of mixed feed per kg of increase in live weight to a sovkhos worker, a kolkhoz member, a pensioner and other individuals living on its territory. The latter, in addition, using their own feed, raise and fatten animals with a live weight of up to 100 kg on private plots and deliver them to the farm. The latter performs the final calculation for the actually obtained output at state purchase prices minus the cost of the hogling delivered for fattening and of mixed feed and other expenses. Such a system of cooperation gives the farm reason to consider the output its own and to receive appropriate increments.

As calculations show, under such a system of cooperation production costs per quintal of output will be reduced considerably on farms. Suffice it to note that in this case there is no need for additional capital investments for the construction of barns, purchase of equipment and enlistment of skilled personnel and fodder expenditures are reduced considerably.

The rayon's rural population responded willingly to the proposal on the cooperation of efforts with public farms in the matter of the raising and fattening of hogs and their delivery to the state. Up to 4,000 contracts specifically indicating the duties and responsibility of both parties were formulated last year. According to preliminary calculations, this year the cooperation with the rural population will make it possible to increase the procurement of meat from the population to 2,000 tons, or 1,000 tons more than last year.

Another variant of cooperation between the population and public farms also deserves attention. A kolkhoz member, a worker and an employee, to whom 0.5 hectares of land are assigned for cultivation, undertakes the obligation to sell 50 kg of cheese and 200 kg of meat from his private plot to the state at the established prices during the year. On its part the public farm undertakes the obligation to help the individual entering the cooperation to cultivate the plot assigned to him in a high quality manner, pays him wages for the care of this plot and gives him 70 percent of the obtained harvest in the form of additional wages and corn stalks, free of charge. The contract stipulates high responsibility on the part of both parties, increased labor activity and the principle of voluntary participation. The rayon workers unanimously approved such a form of cooperation with public farms. In 1980 the rayon population formulated up to 2,000 such contracts, which brought about an additional sale of 1,000 tons of milk and 250 tons of meat to the state.

The workers of Abashskiy Rayon face the future boldly. In the next 2 years the production of milk is to be quintupled and of meat, quadrupled. No less than 60 quintals of corn grain per hectare are to be obtained and milk yield per cow is to be increased to 3,500 kg. The workers of the rayon's agroindustrial complex are preparing to meet the 60th anniversary of the formation of the USSR with new achievements in labor.

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MEASURES FOR IMPROVED INTERRELATIONS OF BUDGET WITH AGRICULTURE

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/Article by S. N. Koryunov, head of the sector of finance and cost accounting of agriculture of the Scientific Research Institute of Finance of the USSR Ministry of Finance: "Some Problems of Improvement of Interrelations of the Budget With Agriculture<sup>1</sup>"

/Text The decisions of the 26th CPSU Congress note that the maximum possible development of the country's agroindustrial complex, provision of proportionality and balance in the development of all its basic and service sectors and strengthening of the material and technical base are the basic goals of the agrarian policy of the party at the present stage. They stress with special force the need to accelerate the transfer of agricultural production to an industrial basis and the introduction of advanced technology and to continue the course for its maximum possible intensification. They set the tasks of attaining a dynamic development and increase in the efficiency of all agricultural sectors and of raising the production and improving the quality of products for a full satisfaction of the needs for food products and agricultural raw materials.

These tasks are closely connected with the country's fundamental social and economic problems. Their solution will help to raise the people's standard of living to a higher stage and will contribute to an elimination of the differences between urban and rural areas.

As is well known, socialist society in its development uses the commodity form of production organized in a planned manner and economic relations are manifested to a significant degree in the form of money relations with the attributes characteristic of them. Such powerful levers of control of public production as finances and credit are now widely used in the system of socialist commodity-money relations. Therefore, the development and improvement of the financial and credit mechanism, in particular the organization of the sector's interrelations with the budget, are very important for the advance of agriculture--a component of the country's agroindustrial complex.

Major measures for the strengthening of the economy and finances of agriculture, regulation of its relations with the budget and other sectors, creation of conditions for cost accounting and intensification of the financial interest of collectives and workers in the results of their labor have been implemented in the country in the last 15 years. The improvement in the planning of production and

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1. The article is published as a discussion.



procurement, coordination of purchase prices with socially necessary expenditures in agriculture, introduction of incentive increments for products additionally sold to the state and refinement of state social and property insurance, the tax system, wages and income distribution played a significant role. The perceptible increase in state appropriations annually allocated for the sector's development from the budget at the expense of centralized funds played a special role in the strengthening of the economy and finances of kolkhozes and sovkhozes.

As a result, agriculture received a big additional income. According to our calculations, from the rise in purchase prices and introduction of incentive increments alone the earnings of kolkhozes and sovkhozes increased 2.3-fold in 1965-1980. The table calculated by us according to the data of annual reports of agricultural enterprises and statistical collections attests to the increase in the volume of financial resources of agriculture (on the average, in 1 year--table 1).

Table 1

(%)					
	Sources	1965	1966- 1970	1971- 1975	1976- 1980 in % of 1965
Internal		50.8	51.4	45.2	40.2
including:					210.6
profit from sales		30.3	32.9	25.8	17.9
depreciation		20.5	18.5	19.4	22.3
Credit for capital investments		7.0	6.8	7.5	8.9
State financing		42.2	41.8	47.3	50.9
including:					321.8
direct		20.6	15.3	14.6	19.9
indirect		21.6	26.5	32.7	31.0
					382.5
Total		100	100	100	100
					266.5

Thus, in the structure of financial resources used for the development of agriculture bank loans for capital investments and the budget capital allocated for these purposes grow at outstripping rates. During that time the proportion of the latter in the total volume of the sector's financial resources rose from 42.2 to 50.9 percent, including of indirect sources (subsidies, state reclamation construction and so forth), from 21.6 to 31 percent, and the proportion of internal sources dropped from 50.8 to 40.2 percent respectively, or almost by 11 points. At the same time, the share of the profit decreased by more than 12 points (from 30.3 to 17.9 percent), while its absolute amount increased 1.6-fold.

Simultaneously with the strengthening of the finances of agriculture a number of social and economic measures were implemented there. Wages increased, pension security improved, cultural and general construction expanded and so forth. All this is reflected in the sector's financial interrelations with the state.

We have attempted to reduce all the forms of financial interrelations to a single analytical scheme and to calculate their balance and final remainder for the period from 1965 through 1978. At the same time, we do not include the part of the

turnover tax received from the sale of some products (vodka, wine, beer and tobacco) in the net income of agriculture. According to our calculations, the dynamics and structure of the balance of financial interrelations of the state with agriculture is characterized by the following figures (at existing purchase, wholesale and retail prices):

Table 2

(%)					
Sources	1965	1970	1975	1978	1978 in % of 1965
1. Realized net income of agriculture (without turnover tax on some products)	100	100	100	100	121.3
2. Net Income of agriculture mobilized for the budget (without turnover tax on specific products)	70.2	51.5	65.8	58.8	101.5
3. State financing for agriculture	41.5	57.3	103.0	106.2	310.3
4. Net income used in agriculture (line 1-2+3)	71.3	105.8	137.2	147.4	250.8
5. Remainder of financial interrela- tions (without turnover tax on specific products) (line 1-4 or 2-3)	28.7	-5.8	-37.2	-47.4	X

After the increase in purchase prices in 1965 the total balance of financial interrelations of the state with agriculture changed considerably in favor of the latter. While the net income realized by agriculture increased by 21.3 percent during the period under consideration, the volume of net income of agriculture with due regard for budget revenues of the turnover tax directly connected with the sale of food products and industrial articles from agricultural raw materials mobilized by the state increased by only 1.5 percent. This was due to the reduction of the rates of turnover tax on products from agricultural raw materials as a result of the increase in purchase prices with invariable retail prices. During the same period the volume of the sector's state financing increased 3.1-fold. In 1978 the amount of net income without the turnover tax on the above-mentioned products used in agriculture exceeded the amount of realized net income almost 1.5-fold.

The final remainder of financial interrelations of the state with agriculture is the result of interaction of the two groups of opposite factors determining budget revenues from the sector and, conversely, budget appropriations for its development. It must be stressed that for many reasons this remainder cannot be an unequivocal indicator of the efficiency of interrelations of the state with agriculture or of the financial efficiency of a specific sector. On the one hand, during certain historical periods there is a need for its accelerated development at the expense of the budget for the satisfaction of the increased demands of agriculture. In such a case the growth of the volume of net income allocated by society for these purposes is due to intersectorial, not intrasectorial, processes and the sector itself is not able to cover such expenses. On the other hand, a significant part of the net income can be withdrawn for other sectors for use for

purposes determined by the state. However, the data on the balance presented above can serve as an important element of the economic mechanism in the sector's operative management--for a prompt elimination of the financial gaps disclosed by means of it and for the strengthening of the cost accounting methods of production management. The final results of financial interrelations must be considered in detailed form, that is, for each balance item separately, but in close coordination with their entire complex, which will make it possible to increase their efficiency.

In our opinion, it is advisable to annually calculate the plan and report balances of financial interrelations of the budget with agriculture for their operative control and improvement.

The growth of financial resources of agriculture made it possible to greatly increase capital investments in the sector. In the last 15 years the total amount reached 383 billion rubles, or 80 percent of their volume during all the years of Soviet rule. As a result, by the end of 1980 the fixed productive capital of agriculture totaled 239 billion rubles, that is, 3.1 times as much as its value in 1965, and power capacities rose 2.6-fold. This made it possible, despite unfavorable weather conditions, to increase the gross output of agriculture (on the average, in 1 year) by more than 9 percent during the 10th Five-Year Plan as compared to the Ninth Five-Year Plan.

Scientific and technical progress fundamentally changed the economic production structure of agriculture and raised its economic potential. Favorable conditions were created for the transformation of agriculture into a highly developed industrial sector in the country's agroindustrial complex on the basis of a balanced activity of all its subdivisions.

However, the existing rates of growth of agricultural production as yet do not make it possible to fully meet the needs of the national economy and the population for the output of this sector. In the last few years the indicators of the return on the invested capital have dropped significantly, the production cost of a unit of output is growing and the profit and profitability of production are decreasing.

On the whole, during the 10th Five-Year Plan the financial state of agriculture was stable, but the proportion of its profit in financial resources declined despite the frequent increases in purchase prices and expansion of the assortment of products to which 50-percent incentive increments for above-plan deliveries to the state were applied. The drop in financial indicators and production profitability in the sector brought about a differentiation of agricultural enterprises in the level of development.

More than one-half--162 billion rubles--of the total amount of additional receipts from the rise in purchase prices in 1965-1980, which, according to our calculations, totaled 283 billion rubles, was used for compensation for the increased production cost of products sold to the state.

We will present a table reflecting the dynamics of expenditures on the commodity output of kolkhozes and sovkhoses and the proceeds from its sale to the state (on the average, in 1 year).

Table 3

(billion rubles)

Sources	1964	1966- 1970	1971- 1975	1976- 1980	1976-1980 in % of 1964
1. Expenditures on commodity output--actual	19.9	28.6	43.8	59.7	300.0
2. Expenditures on commodity output according to production cost of 1964	19.9	26.6	34.7	38.5	193.5
3. Rise in price of output (1-2)	-	2.0	9.1	21.2	106.5
4. Proceeds from sale--actual	22.4	36.3	53.4	67.2	300.0
5. Proceeds from sale at 1964 prices	22.4	27.9	35.0	38.4	171.4
6. Additional income from the rise in prices (4-5)	-	8.4	18.4	28.8	128.6
7. Final result of changes in income and expenditure (6-3)	-	6.4	9.3	7.6	X
8. Profit from sale (4-1)	2.5	7.7	9.6	7.5	300.0
9. Profitability, % (8:1)	12.6	26.9	21.9	12.6	X

The rates of growth of expenditures on commodity output fully coincide with the rates of growth of the proceeds from its sale (threefold). At the same time, although the bulk of the profit also tripled, the level of profitability remained the same and, as compared with 1966-1970, was lowered by more than one-half. With due regard for the coverage of various losses the amount of balance profit determining the real source of accumulation now is comparatively small.

The growth of expenditures and the drop in the indicators of efficiency of agricultural production were the consequence of objective and subjective reasons both intra- and intersectorial. Let us examine the main ones.

The most important social and economic measures in agriculture (rise in purchase prices, introduction of 50-percent purchase price increments and rise in the level of wages, social security and insurance of workers) were not reflected in the same way in the financial state of individual agricultural enterprises and their interrelations with the budget. Additional receipts of financial resources as a result of the redistribution of centralized statewide funds in favor of agriculture for the development of its material and technical base and solution of social and economic problems were also used by many economically strong farms through purchase prices of output. However, economically less strong farms lagging in their development and financial state behind advanced farms experienced needs for additional expenditures to a greater extent. As a result, the differentiation of sovkhozes and kolkhozes in economic and financial indicators was not eliminated completely.

Various factors affected the sector's efficiency. For example, capital investments in agriculture were used for individual measures, not comprehensively, which in a number of cases led to disproportions. More livestock barns than needed were built in some oblasts and republics, where the fodder base was weak, and they remained unfilled. At the same time, very large funds were assigned for the replacement of nonstandard livestock barns with capital, new barns adapted for mechanization, that is, for projects with an expected increase in efficiency in the distant future.



The rates of growth of capital investments outstripped the rates of adoption of new production technology with the use of the achievements of breeding. Therefore, the extremely rapid intensification of agricultural production was not accompanied by just as rapid an increase in its efficiency. The expenditures on the expansion and renovation of the material and technical base increased much more rapidly than output. This led not only to a drop in the capital-output ratio, but also to an outstripping growth of depreciation and of the expenditures on the operation and repair of fixed capital. An increase in current expenses per unit of output was the result. This was especially manifested on farms using old technology in new barns.

The solution of fundamental social and economic, along with production, problems required large additional expenditures. Their outstripping growth on economically weak farms worsened the financial state of the latter even more and in some cases led to losses.

Important reserves for an increase in the efficiency of the financial mechanism in the basic sectors of the agroindustrial complex have not been activated to this day. At individual stages of the production process there is no unified system of financial levers contributing to the attainment of maximum end results. The sectorial principle predominates in price formation, profit distribution, incentives and forms of interrelations with the budget. Retail prices of livestock products do not correspond to expenditures on production, processing and sale. Release prices of agricultural equipment, mineral fertilizers and gasoline are lower than the expenditures on their production and sale. At the same time, the profitability of a number of articles produced from agricultural raw materials in light and food industry is highly substantial, while the production of these raw materials is unprofitable on many kolkhozes and sovkhozes.

In order to ensure a regular process of expanded reproduction and a normal cost accounting activity of enterprises under such conditions, the state widely uses effective tools of intersectorial redistribution of financial resources--the turnover tax, subsidies, privileges and direct financing from the budget. This often does not financially stimulate enterprises to mobilize reserves and to use capital better.

The interrelations of the budget with agriculture are built without a direct coordination with the financial indicators of enterprises. Some highly profitable enterprises accumulate a significant part of the differential rent realized by them, which is not always used efficiently and not for top-priority statewide needs. At the same time, most such enterprises receive budget appropriations. The allocation of capital for the gap between the planned volume of expenditures and internal sources for them often leads to the dissipation of capital investments and resources over many projects and to their nonoverall use, which also does not contribute to an increase in the efficiency of agricultural production. The sharp differentiation in the capital available to individual agricultural enterprises under such a system of financing is smoothened out slowly. Thus, a number of existing financial instruments help little to increase the intensification and efficiency of agricultural production.

In connection with the varying fertility of cultivated land some enterprises are able to realize differential income. The income tax on kolkhozes and the payment for capital by sovkhoses do not solve the problems of equalization of management conditions. Furthermore, the procedure of calculation of the income tax on the wage fund of kolkhoz members does not contribute to a more active use of manpower. Budget subsidies--compensation for the difference in prices of agricultural equipment, fertilizers and gasoline--as well as free services of service facilities (water management) often do not ensure an economical use of resources and a correct calculation of production expenses in agriculture. The procedure of allocation of budgetary appropriations for capital investments on sovkhoses often gives rise to a dissipation of capital and does not stimulate its economical expenditure and reduction.

The development of a system of measures for an improvement in the financial mechanism requires an overall approach to the problem of financial interrelations of the state with agriculture with the maximum consideration of the specific conditions of every farm. At the same time, it is necessary to ensure the fulfillment of the basic tasks of the agrarian policy of the party, which this mechanism is called upon to solve at this stage. At present distribution and redistribution relations are directed primarily toward the most rapid transfer of agriculture to an industrial basis in the structure of the agroindustrial complex. At the same time, provision of the maximum increase in the sector's efficiency becomes an ever more urgent direction in the improvement in the financial mechanism. In the accountability report at the 26th CPSU Congress Comrade L. I. Brezhnev, having noted that large financial and material resources will continue to be allocated to agriculture for its transfer to an industrial basis, stressed the following: "However, the center of gravity--and this is the distinctive feature of the agrarian policy in the 1980's--now shifts to the return on capital investments, growth of productivity of agriculture and intensification and improvement of its relations with all the sectors of the agroindustrial complex."<sup>1</sup> Under these conditions all the methods of balancing the income and expenditure of enterprises on expanded reproduction, that is, cost accounting, credit and budget methods, should be used.

State purchase prices differentiated according to natural and economic zones play an important role in the regulation of the rates of development of agriculture and provision of relatively equal cost accounting conditions for the operation of the sector's enterprises. They are based on the average zonal production cost with due regard for a specific amount of accumulations. This ensures the withdrawal of the differential rent on an interzonal scale. However, a unified zonal price with differences in the land fertility of individual farms creates objective prerequisites for their differentiation within zones according to the level of profitability and economic development. The problem of a relative equalization of the conditions of management has not been solved to this day. It requires the introduction of some special financial instruments.

An intrazonal differentiation of purchase prices with their assignment to individual enterprises has become ever more widespread in the last few years. However, this leads to a loss of the economic nature of prices and often hampers a correct determination of the sector's efficiency throughout regions and a rational specialization of agricultural production.

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1. "Materialy XXVI S'yezda KPSS" [Data of the 26th CPSU Congress], Moscow, Politizdat, 1981, p 46.

Apparently, it would make sense to supplement zonal purchase prices with an effective mechanism of withdrawal of the differential rent on farms with land areas more fertile than the average zonal areas. For this it is advisable to introduce rent payments from such farms differentiated according to the quality of land areas in accordance with their cadastral evaluation. Economically substantiated standards of state allocations for covering planned losses should be established for farms located under worse natural and economic conditions transferred to a preferential procedure of financing and enjoying subsidies for a gap in resources. Standards should be differentiated in accordance with the cadastral evaluation of land in order to create equal opportunities for profitable work for all farms.

Payments by enterprises to the budget represent an important form of direct financial interrelations. Their absolute amount now is not big and stimulation of a better use of resources (payment for capital by sovkhoses) and equalization of the conditions of management (income tax on kolkhoses) are the main functions. These payments need to be improved.

When income tax is imposed on the wage fund of kolkhoz members, the general exemption limit is calculated on the basis of the average monthly earnings of one kolkhoz member regardless of the extent of his labor participation in the public sector. This places kolkhoses under unequal conditions. It would be advisable to recommend that kolkhoses change over to the recording of the average number of their staff members working in public production, as in all state enterprises. In addition to a regulation of the taxation system, this would make it possible to more accurately calculate the actual use of manpower on kolkhoses and to introduce a unified national economic method of determination of labor productivity. Now this indicator is distorted and is not comparable with the indicators of sovkhoses and other state enterprises.

We support the proposal to introduce a differentiated rate of income tax on the wage fund of kolkhoz members in accordance with the wage level. The overwhelming majority of kolkhoses now remunerate the labor of their members at the level of more than 60 rubles per month. The remuneration is sharply differentiated both according to individual categories of workers within the kolkhoz and different farms as a whole. It is advisable to introduce a progressive differentiated rate of tax on the wage fund depending on the amount of wages per worked man-day. The proposal on the payment of this tax by kolkhoz members in analogy with sovkhos workers and employees deserves attention.

The payment by sovkhoses for fixed productive capital also needs to be improved. Its rate--1 percent of the value of capital with a profitability of more than 25 percent--is the same for all sovkhoses regardless of profitability. Many low-profitability sovkhoses do not make this payment. Furthermore, for various reasons a significant part of the capital is completely exempt from this payment. Thus, the amount of these payments is negligible. However, there are many sovkhoses well equipped with capital with high production profitability realizing the differential rent II. For them such a payment is of no stimulating significance.

It would be fully justified to raise the level and differentiate the rates of payments to the budget for fixed productive capital depending on the equipment of sovkhoses with it.

Financing from the budget occupies a significant place in financial interrelations. It is carried out without due regard for the financial state and quality of work of enterprises. Budget methods of financing must be brought into correspondence with the demands for a cost accounting organization of production management. Centralized resources from the budget should be granted after a careful analysis of the specific conditions of development and economic and financial state of every enterprise, which, in our opinion, will greatly increase the effectiveness of these resources.

When making capital investments in agriculture from the capital of the budget, it is advisable to establish limits of financing for enterprises so that their capital equipment can be brought up to the standard level and a completed production cycle can be created. After that the production activity of an enterprise will be carried out on a cost accounting basis and internal capital (profit, depreciation and so forth) and long-term bank credit will serve as a source of capital investments. Apparently, in time it will be necessary to gradually change over to the same principle of capital investment financing for economically weak kolkhozes, because, owing to the shortage of capital, all the same their debts to the bank are written off at the expense of the budget.

The maximum use of the financial resources invested in agriculture on the basis of development of cost accounting principles of management is an indispensable condition for an increase in their effectiveness. It seems that a gradual introduction of payment for services provided for agriculture by service facilities in particular by water management organizations, will be a concrete step in this direction. An experiment in the collection of a water charge has been conducted in the Kirghiz SSR for several years. Its results indicate that such a charge is promising in agriculture. However, the system of calculations used in this experiment is still imperfect and requires a more active involvement of direct water consumers--sovkhozes and kolkhozes--in them. When the water charge is introduced, it will be necessary to raise the purchase prices of products for whose production water use is an agrotechnical necessity (rice and cotton). The capital now allocated from the budget for the maintenance of water management systems will be the source of coverage of the expenditures on these purposes. However, in cases when the transition from dry to irrigated farming is connected with production intensification, the additional economic effect from this measure should be such a source.

For the purpose of increasing the financial interest and responsibility of service enterprises for the results of agricultural production, it is advisable, when determining the charge for services, to establish on an experimental basis two rates, that is, basic and additional, for highly profitable kolkhozes and sovkhozes. The first fully compensates for the standard expenditures on the production of services and is included in the production cost of agricultural products. The second should ensure accumulations for service enterprises and be collected in a specific percent of the profit of an agricultural enterprise (before its distribution for funds) as the result of obtaining services. This would mutually interest the parties in lowering the production cost of output and in its more accurate calculation. The system of double rates should also be applied on an experimental basis to some other services--repair work, technical servicing, transport and so forth. The principle of share participation of partners in profit from production cooperation can also be tested in mutual deliveries of industrial means of production and agricultural output.



A reduction of subsidies and privileges on the basis of development of cost accounting relations would be of great importance for a more perceptible financial effect on an improvement in the results of agricultural production. In connection with this the proposal to abolish subsidies for agricultural equipment, mineral fertilizers and other material resources sold to kolkhozes and sovkhoses, at the same time, including the released capital in the purchased prices of products produced by means of it, in order not to infringe upon anyone's financial interests, deserves serious attention. This will enable kolkhozes and sovkhoses to more correctly evaluate fixed and circulating capital, will intensify the interest of agricultural enterprises in its more careful and economical use and will create conditions for the determination of the full production cost of agricultural products. Subsidies should be retained only for the acquisition of some expensive, new means of production for the facilitation of their introduction into agriculture. The buyers of such machines--agricultural enterprises--should directly receive subsidies.

The financial mechanism is an organic component of the economic mechanism. An increase in the efficiency of the economic mechanism requires a skillful and overall use of all its elements. For example, an improvement in financial relations is impossible without an improvement in production management in the sector. In connection with this, in our opinion, the establishment of a unified completed centralized system of production and management organization in agriculture on a cost accounting basis with an inclusion of kolkhoz associations in it on a voluntary basis would be one of the important measures.

Management can be centralized by organizing territorial-sectorial cost accounting associations on rayon, oblast, republic and Union levels, giving them the necessary rights and resources and granting them the right to conclude contracts with procurement, supply, construction and other organizations for deliveries of agricultural products, acquisition of means of production and so forth. It will be necessary to intensify the role, to expand the rights and to increase the responsibility of the Ministry of Agriculture and its local bodies for the state of affairs in the sector. Centralization of the sector's management on a cost accounting basis will ensure greater efficiency in the relations of agricultural enterprises with the centralized systems of service organizations. In particular, centralized contractual relations will help to fully subordinate the activity of procurement, processing, supply and service facilities to the interests of the growth of agricultural output and improvement of the final results of the agroindustrial complex.

At the present technical level of national economic development interconnections among sectors based on the division of labor have been supplemented by their economic interdependence. Whereas previously intersectorial relations were limited to an exchange of the products of activity, now there is an interdependence in the establishment of the volumes of utilization of natural, labor and material resources. The viability of sectors is determined not only by their own activity and mutual deliveries of products, but by the total volumes of resources in the national economy limiting production. Not a single sector can now use resources in an unlimited way, without taking into consideration the interests of other sectors, because this can result in damage to itself. Under such conditions coordination of the activity and development of sectors and optimal proportions of the distribution of resources for the purpose of obtaining the greatest return on them are extremely important.

On the whole, the problems of proportionality of development of sectors are solved in the course of formation of the agroindustrial complex. However, this is a long and complex process. In our opinion, the establishment in the center and in the localities of intersectorial coordinating councils on a voluntary basis, which consist of managers of agricultural, processing, industrial and service enterprises, would be an important organizational measure for an increase in the efficiency of agriculture at this stage.

Making processing enterprises head enterprises organizing the activity of agricultural enterprises on a contractual basis with mutual cost accounting responsibility and help is also an effective form of intersectorial coordination. Subsequently, an agroindustrial production complex could be established on the basis of their unification.

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## AGRO-ECONOMICS AND ORGANIZATION

### INCREASING EFFICIENCY OF PRODUCTION, SALE OF CROPS

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/Article by V. Podkopayev, member of the Board of the USSR Ministry of Procurements and chief of the Central State Inspection for the Quality of Agricultural Crops and Raw Materials: "Some Questions on Increasing Production Efficiency and the Sale of Crop Husbandry Products To the State"

- /Text
1. New system of economic stimulation placed in operation.
  2. Improvements in the quality of the products being procured.
  3. Campaign against losses.

The 26th CPSU Congress, while continuing the program of the Communist Party aimed at steadily raising the welfare and cultural standard of living of the Soviet people, has approved an extensive program for further raising the efficiency of all social production, increasing labor productivity and raising the social and labor activity of the Soviet people. A most important role in solving these tasks must be played by the agroindustrial complex and particularly by its central element -- agriculture.

Raising the standard of living of workers pushes into the foreground the task of improving the supply of food goods for the population and also industrial consumer goods. The most effective solution for this particular task is that of increasing the production of agricultural products, improving their quality and preventing losses.

In order to ensure that the country's population is supplied with food goods and animal husbandry with concentrated feeds, the state is creating a food fund. Agricultural products or finished products for which agricultural products served as the raw material are being added to this fund. Procurements obtained from kolkhozes, sovkhoses and inter-farm enterprises constitute the principal bulk of the agricultural products being added to the state resources. The state plans for product procurements are in fact an order by the state. Taking into account this order and the intra-farm requirements, the kolkhozes, sovkhoses and inter-farm enterprises produce agricultural products in a definite volume and assortment.

#### New System of Economic Stimulation Placed in Operation

The plans for the procurement of agricultural products must be carried out on the whole and by crops so as to ensure the production of all products required by the

population and the feed required for animal husbandry. In the process, the state inspections for procurements and the quality of agricultural products are obligated to reveal in a timely manner the commodity output resources and to organize in the prescribed manner their marketing by the kolkhozes and sovkhozes, not only in behalf of the sales plan but also in excess of the plan.

The state issues incentives for the above-plan sale of products. The system which was in effect up to 1981 for paying a 50 percent bonus to farms for above-plan sales of agricultural products to the state at times provided advantageous conditions for economically strong farms, with weak farms being deprived of this advantage. Some of the weak farms were unable to fulfill even their firm plans.

In the interest of further increasing the production and procurements of agricultural products and strengthening the kolkhoz and sovkhoz economies, the CC CPSU and the USSR Council of Ministers, in 1980, adopted the decree entitled "Improvements in Planning and in the Economic Stimulation of the Production and Procurement of Agricultural Products." Commencing in 1981, this decree established unified state plans for the procurement of agricultural products for a five-year period, with a distribution of tasks by years.

In connection with the conversion over to the unified plans for state procurements and in the interest of retaining the existing average annual level of payments to the farms per unit of agricultural output, new procurement prices were established which include the total amount of bonuses paid out earlier for above-plan output or for the sale of products over and above the achieved level. Thus, commencing this year, the kolkhozes and sovkhozes will receive more when selling grain to the state: for corn -- an increase of 26 percent, peas -- 25-36, soybeans -- 35, vetch forage -- 50 and millet -- 33 percent. The new raised procurement prices apply also to products sold to the state by the population, with the population thus obtaining 135-140 million additional rubles annually.

During the 1981-1985 period, the kolkhozes, sovkhozes and other agricultural enterprises and associations will be paid bonuses amounting to 50 percent of the new procurement prices for the sale to the state, over and above the average level achieved during the Tenth Five-Year Plan, of grain, sunflowers, sugar beets, raw cotton, soybeans, flax and hemp products (straw, stock fibre), potatoes, tea leaves, livestock and poultry, milk, wool, eggs, karakuls and antlers.

Computations reveal that if the kolkhozes and sovkhozes carry out the plans established for 1981 for selling agricultural products to the state, their income compared to the previous year will increase by 4 billion rubles as a result of this bonus alone.

The new procurement prices and the raised payments for products sold by farms over and above the level achieved during the Tenth Five-Year Plan are a manifestation of the tremendous concern being displayed by the party and government for raising the profitability of agricultural production. During the Eleventh Five-Year Plan, this is creating the conditions required for further increasing the production and procurements of crop husbandry and animal husbandry products.

The new system of economic stimulation is equally profitable for both economically strong and weak farms. The first group of farms, having undertaken raised plans, will receive adequate logistical resources for further increasing the fruitfulness



and productivity of animal husbandry and also the sale of products to the state. As a result, they will supplement their income by means of raised payments for products sold over and above the average level achieved during the Tenth Five-Year Plan. The second group of farms, having considerably greater unused reserves and less expenditures, will be able to surpass the achieved level of sales and thus increase their income.

During the Eleventh Five-Year Plan, improvements were carried out in the conditions for maintaining accounts with kolkhozes and sovkhoses for the delivery of products. Prior to 1981, the expenses of kolkhozes and sovkhoses for delivering products to receiving points and procurement enterprises, regardless of the type of transport employed, were reimbursed according to unified rates for motor transport shipments. As a result, the farms quite often sustained losses. Since 1981, those procurement, trade and other enterprises and organizations which carry out agricultural product procurements have been bearing all expenses associated with the transporting, expediting and unloading of these products. When the products are delivered by means of kolkhoz and sovkhos transport vehicles, these enterprises and organizations reimburse the farms for their expenses in accordance with the norms and rates for the type of transport used for carrying out the shipments.

In the interest of stimulating the production and procurements of grain, buckwheat, beans and lentils, a system of counter sales to kolkhozes, sovkhoses and other agricultural enterprises and organizations of mixed feeds or grain forage, at the rate of 1 quintal per quintal of grain from the mentioned crops sold to the state, was introduced into operations commencing in 1981.

The plans call for the payment during the 1981-1985 period, to kolkhozes, sovkhoses and other agricultural enterprises and organizations, of a bonus amounting to 50 percent of the procurement prices for the sale of the grain from buckwheat, millet, beans and lentils to the state, over and above the average level achieved during the Tenth Five-Year Plan, regardless of the degree to which this level was achieved on the whole for grain.

Raised procurement prices were established for the grain of white and colored beans, bean mixtures according to color, mung beans and table lentils, in the amount of 600 rubles per ton.

#### Improvements in the Quality of the Products Being Procured

In addition to increasing the production and procurements (for state resources) of agricultural products, improvements must also be achieved in their quality. In many instances, this is equivalent to achieving additional production, since the processing of high quality raw materials results in an increase in the overall yield of products and in an expansion in the variety of goods.

The nutritional and technological value of grain, oil-producing crops, sugar beets, potatoes, fruit, vegetables and other crop husbandry products is directly dependent upon the variety, agricultural practices, climatic factors, efforts directed against agricultural pests and diseases and upon the conditions, methods and schedules for carrying out such operations as post-harvest cultivation, harvesting the crops, transporting and storage.

Special importance is attached to improving the quality of the grain, since it is the most important food source for humans. In order to obtain standard high

quality flour, the wheat, in addition to having definite indicators for moisture content and weed and grain impurities, must also possess fine technological -- milling and baking -- properties. In particular, the volume-weight must be 750 grams or higher, the basic norm, and it must make it possible to obtain the planned (75-78 percent) amount of flour. It is known that a lowering of the volume-weight of wheat by 1 gram will bring about a reduction of 0.11 percent in the yield of flour. For example, when processing 1,000 tons of wheat having a volume-weight of 720 grams at a mill, the yield of flour decreases by 33 tons compared to the norm, while the amount of feed product -- bran -- increases by this same amount.

The minimal norm for glassiness in strong wheats is 60 percent; this ensures that the required amounts of high and first class flour will be obtained.

Wheat intended for the production of baking flour must have no less than 25 percent gluten and be no lower than Group II for satisfactory quality. This will make it possible to obtain standard high quality flour.

At the present time, high quality flour of superior, first or second class grades constitutes more than 92 percent of the overall volume of flour production. The production of high quality flour must increase still further. This is associated with growth in the material welfare of the people and, it follows, with a raised demand for high grades of grain and baking, macaroni and confectionery products.

The actual quality of the wheat grain being added to the state resources in a number of regions throughout the country does not always meet the requirements indicated above. During the 1976-1980 period, the volume-weight of wheat fluctuated from 740 to 765 grams. During the Tenth Five-Year Plan, the wheat procured in the Moldavian SSR, Ukrainian SSR, Kazakh SSR, in Krasnodarskiy and Stavropol'skiy Krays and in Kuybyshevskaya and Rostovskaya Oblasts was the best in terms of volume-weight.

The amount of gluten in the wheat also fluctuated sharply. Thus, in order to obtain standard high quality flour, grain from strong wheat ameliorants must be added to wheat grain having less than 25 percent gluten.

In addition to wheat having a low volume-weight and low gluten content, caused by violations of the rules for cultivation and the optimum harvesting periods, batches of wheat containing sprouting, unripe, winter-killed and other low-value types of grain are being added to the state resources in some regions. Such grain, despite the fact that it is being paid for at the prices for bread grain, is nevertheless being used mainly for feed purposes.

Compared to the Ninth Five-Year Plan, strong wheat procurements during the Tenth Five-Year Plan increased by twofold. Nevertheless, the requirements for such wheat are still not being satisfied fully. The state is issuing material incentives for the increased production and sale to the state of strong wheats. These incentives take the form of bonuses in the amount of 30 or 50 percent of the procurement prices, added to the procurement prices, depending upon the quality of the grain.

The agricultural workers in the Kazakh SSR and in Stavropol'skiy and Krasnodarskiy Krays are selling the greatest amount of high quality strong wheat grain to the state.

Full use is not being made of the available potential for producing and procuring strong wheat grain in the Ukrainian SSR, especially in a number of oblasts in the steppe zone (Dnepropetrovskaya, Zaporozhskaya, Nikolayevskaya, Khersonskaya, Odesskaya and Krymskaya), where the proportion of strong wheat being procured for the state resources is low.

The harmful practice of combining a quantity of procured strong wheat with the grain of so-called valuable wheat, a practice which has entered into widespread use in recent years in a number of areas throughout the country, among agricultural workers and in procurement and other organizations, is not promoting an increase in the production and procurements of strong wheat grain. It is however creating the appearance of well-being with regard to solving the problem of increasing the production and procurements of strong wheat grain, although this problem has still not been solved completely.

Science and many years of operational practice have truly established the fact that the grain of strong wheat, when added in definite proportions to weak wheat, is capable of improving its technological qualities, especially its baking properties. The wheat of more valuable varieties makes it possible only to obtain standard baking flour from them, but it is not capable of compensating for the lowered quality of the weak wheat, that is, it cannot serve as an ameliorant. Although the state is interested in obtaining a great quantity of valuable wheat and encourages the sale of such wheat by means of a 10 percent bonus added to the price, nevertheless such wheat is far from being equal to strong wheat.

Some agricultural workers and state inspections for procurements and the quality of agricultural products at times harbor the erroneous opinion that in order to cultivate strong wheat grain it is enough to merely sow a potentially strong variety of wheat. This turns out to be inadequate even under favorable soil-climatic conditions.

In order to obtain truly strong wheat grain, a great amount of organizational and practical work is required on the part of the agricultural enterprises and procurement organs in carrying out a system of agrotechnical measures. In particular, this system includes improving the seed to a high sowing condition, selecting the predecessor arrangements and the optimum sowing periods, applying fertilizers, applying top dressings to the plants, combatting plant pests and especially the stink bug, carrying out a preliminary inspection of the winter wheat grain, ensuring that the harvest work and post-harvest cultivation operations are carried out in a timely manner and preventing the strong wheat grain from becoming mixed with other grain on the thrashing floors and in the storehouses and elevators.

The experience accumulated in Yeyskiy Rayon in Krasnodarskiy Kray, with regard to increasing the production and procurements and improving the quality of strong wheat grain, warrants a high evaluation and the introduction into operational practice on an extensive scale. The party, soviet, agricultural and procurement organizations and the leaders and specialists of kolkhozes and sovkhoses throughout the rayon are constantly displaying concern for raising the level of professional training for the personnel, improving the culture of farming, ensuring the efficient use of equipment and organic and mineral fertilizers, carrying out field operations during the optimum periods and organizing competitions for improving the quality of the products being produced.

The complex of technological and organizational measures developed and employed on farms in Yeyskiy Rayon made it possible for the rayon, during the Tenth Five-Year Plan, to raise and sell to the state 560,000 tons of strong wheat, or approximately 90 percent of the overall procurement volume for this crop in the rayon. For the sale of high quality grain, the rayon's farms received 11 million additional rubles alone in the form of bonuses added on to the procurement prices.

The production of high quality strong wheat grain requires additional expenditures. Such expenditures for the rayon amount to an average of 5 rubles and 30 kopecks per ton of grain sold, but a profit of 3 rubles and 16 kopecks is realized for each ruble of these expenditures.

The grain for high grade (1st and 2d class) durum wheat, required for producing macaroni products, is also being added to the state resources in insufficient amounts. Thus a considerable portion of the macaroni flour must be produced from highly vitreous soft wheats and this adversely affects the quality of the macaroni products.

Meanwhile, full use is not being made of the favorable soil-climatic conditions that are available for increasing the production and procurements of high quality durum wheat grain, especially in the RSFSR and the Kazakh SSR. The state is stimulating the production and sale of durum wheat grain, depending upon the quality grade, by means of bonuses ranging from 20 to 100 percent added onto the procurement prices. The state procurement inspections are responsible for acquainting the agricultural workers with the need for increasing the production and sale of high quality durum wheats, raising the level of agricultural practices, intensifying the campaign against the stink bug and observing the harvesting rules and schedules.

During the past few years, in the nonchernozem zone of the RSFSR, the forest-steppe regions and the western oblasts of the Ukraine, Belorussia and in the Baltic republics, the sowings of wheat have been expanded while rye sowings have decreased. But the wheat obtained in these regions does not possess the milling or baking properties required for the production of baking flour. At the same time, the rye obtained in these regions as a rule is of good quality. It is used mainly for producing three types of flour: scoured, hulled and sifted, which are used for preparing a broad assortment of breads (plain, rye, wheatmeal bread, Moscow and others). The bread made from rye flour in these and some other regions of the country is in no less demand than wheat bread and at times there is even a greater consumer demand for it.

In addition to the need for increasing the production and procurements of the principal groat crops -- millet and buckwheat -- greater attention must also be given to improving their quality.

Up until now, many kolkhozes and sovkhoses have been selling considerable quantities of millet, buckwheat and rice of low quality and marked by deviations from the established conditions with regard to the presence of weeds which are difficult to separate out and grain that is spoiled, collapsed or damaged. When processing such grain, the yield and grade of the groats decrease sharply and in many instances the groats produced have a lower content of high quality kernels and this causes considerable harm to the country's national economy.



A serious shortcoming in the activities of agricultural and procurement organs in a number of regions is the lag that has developed in the production and procurements of sunflowers. The reduced amount of attention being given to the agricultural practices employed in cultivating sunflowers has brought about a reduction in yields compared to the Ninth Five-Year Plan and in a number of instances the sunflowers added to the state resources have been contaminated by diseases and rot. The content of damaged seed and the acid count of the oil exceeded the permissible limits and this hampered the production of food oil from the seed.

The lowest quality sunflowers were obtained in Belgorodskaya, Saratovskaya, Voronezhskaya, Poltavskaya, Khar'kovskaya and Voroshilovgradskaya Oblasts and in the Moldavian SSR.

During the years of the Tenth Five-Year Plan, improvements were achieved in the quality of the food potatoes procured for the state resources. The best quality potatoes were procured in the Estonian SSR, Lithuanian SSR and the Latvian SSR.

Differentiated procurement prices were established for the early varieties of potatoes which exceed by a factor of 3-8 the prices for late potato varieties. Bonuses in the amount of 20 rubles have been added to the procurement prices for highly valuable biological varieties in a number of union republics and in oblasts of the RSFSR. A price reduction of 28 percent is employed for the sale of non-standard potatoes.

In the interest of raising the consumer qualities of potatoes to be processed for starch and alcohol, a bonus has been established for adding to the price for raised starchiness, compared to the basic conditions, and a price reduction has been established for a lower starchiness at the rate of 6 rubles for each ton-percent of starch.

The standard portion of the vegetables procured during the five-year plan has been raised considerably. The quality of the vegetables procured in the Uzbek SSR, Kirghiz SSR, Belorussian SSR, Kazakh SSR and the Moldavian SSR was higher than the average level.

For the purpose of raising the quality of various vegetable crops, complexes of measures are available which take into account the peculiarities of each crop. For example, in order to obtain high quality cucumbers and in addition to combatting those diseases which infect cucumbers (bacteriosis, anthracnose and others), the crop should be harvested in a timely manner. It is recommended that cucumbers be harvested during the early morning hours and graded and packaged in the shade using latticed boxes. The temperature of the surrounding air affects the preservation of cucumbers to a considerable degree. The packaging of cucumbers in polymer materials preserves their quality and extends the storage periods.

Differentiated procurement prices and bonuses added on to the prices for the more valuable varieties have been established depending upon the ripening periods and the quality of the cucumbers. Thus the procurement prices for early varieties of cucumbers in the union republics are 5-13 times higher than the prices for late cucumbers. A bonus of 20 percent has been established in all areas for adding to the price for those cucumbers of the Nezhinskiy variety, which meet the standard requirements for quality; a bonus of 50 percent is established for this same

variety of cucumber when the size of the fruit measures 91-100 millimeters. At the same time, procurement price reductions on the order of 15-40 percent are established for the sale of non-standard cucumbers.

The procurement prices for early varieties of tomatoes, effective in the union republics, are 6-10 times higher than the prices for late varieties of tomatoes. A price reduction of 15-40 percent is employed when selling tomatoes of non-standard quality. Since the output yield during the industrial processing of tomatoes is dependent upon their dry substance content and the size and consistency of the fruit, bonuses have been established for adding on to the procurement prices. For each percent of raised dry substance content, compared to the basic (4.5 percent) content, a bonus of 0.25 percent is added on to the procurement price. For the especially valuable small-fruited varieties of Malyutka, Rybka, Slivovidnyye and others, bonuses amounting to 25-60 percent of the procurement prices are established.

The quality of the fruit procured during the Tenth Five-Year Plan increased by almost 13 percent. High quality fruit was procured in the Moldavian SSR (standard portion 98.9 percent), Georgian SSR (97.8) and in the Uzbek SSR (92 percent). Low quality fruit, lower than the average level, was procured in the Ukrainian SSR and the RSFSR.

The procurement prices for apples were differentiated by pomological groups (from 2 to 4) and marketable grades (I and II). In the majority of union republics, the procurement prices for apples of the marketable grade I were higher than the prices for the marketable grade II by 20-25 percent. In the RSFSR, a bonus of 10 percent was added on to the price for highly valuable pomological varieties of apples.

Non-standard apples are paid for in the amount of 40-60 percent of the price for Grade I apples. A 10 percent price reduction is employed when selling apples in a mixture of pomological varieties

Over the past few years, in addition to growth in the production and procurement volumes for raw cotton, improvements have also been achieved in its quality. During the years of the Tenth Five-Year Plan, improvements were also realized in the assortment of raw cotton varieties suitable for mechanical picking.

In conformity with the decree of the CC CPSU and the USSR Council of Ministers entitled "Improvements in Planning and in the Economic Stimulation of the Production and Procurement of Agricultural Products," a considerable amount of work has been carried out in connection with improving the procurement prices for cotton. They have been increased by an average of 10 percent. In particular, the prices for the highly valuable fine-fibred cotton of types I and II have been raised.

In recent years, no improvements have been realized in the quality of the fibre crops, the result of insufficient attention being given to them by the farm leaders and specialists and also by the state procurement inspections.

The best quality flax products are procured in the Ukrainian SSR.

Quite often the leaders and specialists of some farms fail to make full use of the potential available for increasing farm income based upon improvements in the

quality of the products being produced. Moreover, one often encounters incidents of unskilled handling of fibre crops during harvesting operations and also during the post-harvest period and this leads to a deterioration in the quality of the products and to a reduction in farm income.

In the interest of increasing the production and procurements of products and also for the purpose of raising the quality of the fibre crops, use is being made of material incentive measures. Thus, commencing in 1981 the procurement prices for individual types of spinning-flax products and central Russian and southern hemp were raised by 13-50 percent. Bonuses amounting to from 5 to 15 percent of the procurement prices were established for the sale of stock and spinning flax fibre of high quality varieties.

No improvements were realized in the quality of sugar beets during the Tenth Five-Year Plan, even though material incentives are being issued for raising the quality of the beets being sold to the state. Bonuses were established and added on to the procurement prices for sugar content that exceeded the basic level. The bonuses are paid out for each percent of sugar content in excess of the basic level, at the rate of 4 rubles per ton of beets. A 20 percent reduction in price is employed for the sale of frozen or wilted beets.

Considerable improvements were realized in the quality of tobacco during the last years of the Tenth Five-Year Plan.

The best quality for tobacco raw materials of skeletal varieties was procured in the Azerbaijan SSR, Georgian SSR, Moldavian SSR and Kirghiz SSR.

Low-grade tobacco raw materials of aromatic varieties were produced in the RSFSR, Kazakh SSR and in the Armenian SSR.

Material incentives are being issued for improving the quality of the tobacco raw materials being sold to the state. The procurement prices are differentiated by botanical and marketable grades. In the majority of union republics, the procurement price for Grade I tobacco of the botanical varieties Trapezond, Krupnolistyy and Sigarnyy exceeds by a factor of seven the price for Grade IV. Depending upon the moisture content and weediness of the tobacco, compared to the conditions called for in the State Standard, bonuses or price reductions are applied depending upon the physical weight. A payment for drying and cleaning is collected when tobacco of raised moisture content and weediness is sold.

During the 1976-1980 period, the proportion of 1st quality tea leaves increased compared to the years of the Ninth Five-Year Plan. The best quality tea leaves were procured in the Azerbaijan SSR.

#### Campaign Against Losses.

The agricultural workers, under the direction of the party and soviet organs, are solving the strategic task of supplying the country with food goods and agricultural raw materials and they are producing tens of millions of tons of farming products annually.

The contribution being made by agricultural workers towards carrying out the food program and raising the effectiveness of production of agricultural products will

be even greater if more measures are undertaken aimed at preventing product losses during harvesting, post-harvest tilling, transporting, storage and processing operations. The most important task of all elements of the agroindustrial complex, as clearly defined during the 26th CPSU Congress, is that of protecting everything that is grown. The stable and uninterrupted supply for food goods for the population is dependent upon this action being carried out.

However, in past years a portion of the crops grown has in a number of instances been lost owing to a number of reasons. The state inspections for procurements and the quality of agricultural products must serve as active organizers of the campaign against losses. In particular, measures should be carried out aimed at eliminating entirely or reducing to a minimum crop losses during the harvesting, transporting, storage and processing stages.

In the interest of preventing grain crop losses, great importance is attached to selecting the best periods for commencing the mowing work and for completing it as rapidly as possible. According to data supplied by scientists, a delay of just 10 days in harvesting grain crops which have achieved full ripeness can result in losses of up to 22 percent of the crop. In addition to direct losses, the incorrect selection of the grain harvesting periods and methods also lowers the quality of the grain.

The quality of the grain obtained from rice, millet, buckwheat, sunflowers and some other crops is adversely affected by an incorrect thrashing regime, which results in considerable crushing of the grain.

In order to prevent grain losses, the working organs of the combines and harvesters should be carefully adjusted, the combines and motor vehicle bodies hermetically sealed, control thrashings should be carried out and use should be made of methods which promote the preservation of the grain.

It has been computed that if a combine operator leaves 4-5 unthrashed ears out on each square meter of field, a shortfall of 40-50 kilograms of grain per hectare will develop and if one grain per ear is not thrashed -- a loss of 160 kilograms of grain will ensue.

Losses in grain and oil-producing seed can take place not only in the sphere of production, but also during transport operations and at grain receiving and grain processing enterprises and oil-mills. The leaders and specialists at all enterprises are responsible for ensuring complete and efficient use of all available logistical means for the timely processing of the grain and oil-producing seed: drying, cleaning and forced ventilation.

The presence of numerous grain spills on railroads along which freight cars loaded with grain pass testifies to the fact that certain workers attached to the railroads and grain receiving enterprises are overlooking the need for protecting the grain.

In many instances the railroad stations are providing poorly repaired freight cars for the loading of grain and, as a result, grain is lost along the route. But the chief reason for great grain losses during railroad shipments is the faulty program for placing the grain in freight cars. This program, approved by the Ministry of Railways, calls for the level of the grain in the freight car to be considerably higher than the panels that protect the doorways.



In recent years, the situation with regard to protecting grain during railroad shipments has become more complicated owing to the fact that the Ministry of Railways has issued instructions calling for the freight cars to be loaded with 5 more tons of grain than their freight carrying capability allows for; thus this arbitrarily increases the norm for loading grain into the freight cars by 10 or more tons and in the final analysis this so-called "savings" in the use of freight cars turns into considerable grain losses.

On some farms, owing to violations of the rules for preparing cotton fields for harvesting and failure to observe the schedules and technology for carrying this work out, losses and a reduction in the quality of the raw cotton are being tolerated. These violations manifest themselves in an especially adverse manner during machine harvesting work, at which time 8-10 percent of the cotton falls to the ground and becomes contaminated.

This cotton must subsequently be harvested manually and a large portion of it turned over to the procurement points as being of fourth grade quality. Thus the farms sustain considerable material losses.

An important factor for raising the quality of cotton and reducing losses is that of the brigade acceptance of it by the cotton receiving points and the issuing of bonuses to those driver-mechanics engaged in the machine picking of raw cotton.

Considerable sugar beet losses may occur owing to incomplete extraction of the roots. Since the grain harvesting combines are not entirely perfect, they must be halted from time to time (after 2 hours of operation) for cleaning, so as to prevent roots from being left in the ground (up to 2 tons per hectare).

During the harvesting process, the transporting of the products from the fields must be organized in an efficient manner, since the losses in beets stored in small uncovered piles out on the fields amounts to more than 1 percent for each day of such storage.

When storing beets at plants while awaiting processing, the sugar content in the beets decreases. The longer the sugar refining season, the less yield of sugar per unit of raw material processed. A reduction in the sugar content of the beet of just one tenth of 1 percent would amount to a loss of more than 70,000 tons of sugar for the country as a whole.

The losses in potatoes, vegetables and fruit are especially great during the harvesting, transporting and storage stages, amounting in some instances to 20-25 percent of their overall yields. These great losses are caused mainly by a low level of organization for the harvest operations, inadequate equipment and violations of the rules for transporting and storing the products.

In summarizing the rich experience of life, personal observations, agricultural practice and the practice of state procurements, Comrade L.I. Brezhnev stated in his book "Tselina" /The Virgin Land/: "The campaign against losses is one of the chief reserves of agriculture at the present time. It is fully obvious that less effort and resources are required for protecting products already produced than are required to produce the products."

In the recently adopted decree of the CC CPSU and the USSR Council of Ministers on intensifying the work directed towards achieving economies and ensuring the rational use of raw material, fuel-energy and other material resources, special emphasis was placed upon measures aimed at eliminating losses and achieving efficient use of all field and farm products.

Thrift and concern for supplementing the country's food resources warrant maximum attention on the part of agricultural workers and those attached to procurement and processing enterprises and state inspections. These individuals must establish strict control over the protection of agricultural products and deal very strictly with those who tolerate losses in these products.

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## TILLING AND CROPPING TECHNOLOGY

### DEVELOPMENT OF MEASURES TO MAKE THE MOST OF WINTER GRAIN CROPS

Kiev SIL'S'KI VISTI in Ukrainian 17 Jan 82 p 2

[Article by B. Vybllov, director Genicheskaya research station, candidate of agricultural sciences and M. Myloserdov, director Prisivashskaya research station, doctor of agricultural sciences: "A Guaranteed Winter Crop Field."]

[Text] In the southern oblasts of Ukraine where draught and dust storms occur frequently steady yields of winter wheat in non-irrigated conditions are obtained only after black fallow. In those years when a droughty period extends from fall into spring or when it lasts through several vegetations, winter wheat sown after unfallow predecessors dies from soil dryness, dry wind and wind erosion.

Data from the Genicheskaya research station in the Kherson area indicates that in 1975, which was droughty, 26.4 quintals of winter wheat were harvested per hectare after fallow, in 1979 -- 40.3 quintals, whereas after unfallow predecessors 5.1 and 13.4 respectively per hectare.

Sowing winter wheat after fallows reduces moisture losses for harvest development considerably. Eight year data from the above research station show that water expenditures per ton of grain allocated after black fallow amounted to 920 cubic meters, and after unfallow predecessors 1,291.

Observations over many years done by research stations in the south of Ukraine show that in droughty rayons without irrigation 40 to 50 percent of winter wheat should be allocated after black fallows, 25 to 30 percent after occupied, the remainder of the area after better predecessors (peas and corn cut for silage during milky wax ripeness). Winter wheat should not be sown after stubble predecessors because most years the crops die either from soil dryness in the fall, or from unfavorable wintering conditions in the winter.

In the Yakymivskiy Rayon, Zaporozhskaya Oblast, for example, 5 to 8 percent of wheat is sown after black fallows, 16 to 17 percent after occupied and after stubble predecessors over 50 to 52 percent of the whole winter crop area. The same applies to quite a few



other southern oblasts. In a number of places a tendency to a gradual decrease of the black fallow area may still be observed. At the kolkhoz "Svitanok", Sakskiy Rayon, Krymskaya Oblast at the end of the Ninth Five-Year Plan occupied fallows took up 550 hectares, at the end of the Tenth Five-Year Plan 51 hectares were left. A continuous decrease of the black fallow portion in crop rotation and an increase in the wheat crop after stubble predecessors raises winter crop losses because of unfavorable fall-wintering conditions. During the Tenth Five-Year Plan in Berdyanskiy Rayon, Zaporozhskaya Oblast alone 44,500 hectares of winter crops were resown with spring crops amounting to one-fourth of the sowing area. During the Ninth Five-Year Plan in Nizhnyosirogozkiy Rayon, Khersonskaya Oblast the total area of resown wheat amounted to 44,400 hectares (20 percent), and in the Tenth Five-Year Plan already 110,800 hectares (42 percent).

The increase in resown winter crop area is explained not only by unfavorable weather conditions but also by a lowering in predecessor quality. Some farms have no black fallows at all which led to a decrease in yield. In the kolkhoz im. Shevchenko, Genicheskiy Rayon, with no fallows in the Tenth Five-Year Plan, there was a smaller winter wheat harvest compared to the rayon average: in the moist 1978 it was 4.4 quintals per hectare less, 10.1 quintals less in the droughty 1979, and 5.1 quintals less in 1980.

What is the best method for tilling fallows? Soil protecting methods should be followed. They promote better moisture accumulation and its more productive utilization. Ten year data (1972-1981) from the Prisivashskaya agro-forest reclamation research station show that accessible moisture reserves in the meter and a half soil layer over fallows, where soil protecting methods were applied, were greater than in plowed fallows. Higher accessible moisture reserves in the first instance are evident during the whole winter wheat vegetation period.

In 1980 a harsh, dry wind came when the grain had reached the milky wax ripeness. Its water losses in fallow crops tilled with soil protecting methods were 2.9 percent whereas with regular tilling methods they were 5.4 percent. A specific example can be cited. At the kolkhoz im. Karl Marx in Genicheskiy Rayon where fallows were tilled with sweeps and were clear of weeds approximately 42.8 quintals of winter wheat were obtained. In the neighboring kolkhoz im. 21st CPSU Congress where fallows were plowed, the harvest was 11.7 quintals less per hectare. and at the Novogrigorivskiy interfarm enterprise where, in addition, fallows were not appropriately tended, the yield was 25.3 quintals per hectare less.

Fertilizing plays an important role in raising fallow area productivity. At state farms "Komunist", "Yakymivs'kyi" in Zaporozhskaya Oblast, im. Frunze, Krymskaya Oblast, "Chervonny Chaban" and "Bil'shovys't'kyi Nastup", Khersonskaya Oblast, where fallows are worked with organic and mineral fertilizer without violating other agrotechnical requirements, of course, every year approximately 50 to 59 quintals of grain are harvested. Fertilizers always have

a positive effect on quality indicators. An especially effective method for their improvement is late above root top dressing with a dose of 30 kg urea per hectare during the heading stage and at the beginning of milky ripeness. Data from the Genicheskaya research station indicate that compared to the control, averaging over three years, above root top dressing increased grain waxiness by 12 percent, grain protein content by 2.08 percent, raw flour gluten by 5.8 percent and bread volume per 100 grams of flour by 31 cubic cm. With a basic nitrogen application of 90 kg per hectare net profit per winter wheat crop hectare after fallow increased by 30.26 rubles, above root top dressing at the beginning of milky ripeness with a dose of 30 kg yielded 86.15 rubles.

Soil conserving tillage assures promising fallow protection against wind erosion, sowing with stubble seeders protects the crops as well. It is best to combine agrotechnological antierosion steps with forest reclamation methods. There is no evidence of dust storm damage under the tent spread by forest zones. Winter wheat harvest increase after fallow on between-zone fields compared to open fields (as indicated by many years' data of the Prisivashskaya agro-forest reclamation research station) amounts to 3.9 to 4.5 quintals per hectare (12 to 14 percent). It is best to sow wheat after fallows into a moistened soil with disk seeders, however, if the sowing layer is insufficiently moistened stubble seeders should be used.

Therefore, to increase the gross winter wheat harvest, to improve its quality in the droughty rayons of the republic's southern oblasts, at least 12 to 13 percent of arable land should be under black fallow; on farms where, in addition, fields are infested with knot grass and sow thistles at least 15 to 18 percent. Clean fallow is a guaranteed winter crop field.

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EFFECTIVENESS OF EROSION CONTROL MEASURES IN RSFSR DISCUSSED

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 1, Jan 82 pp 36-39

/Article/ by N. Gorodetskiy, candidate of economic sciences, senior scientific worker at the All-Union Scientific Research Institute of Farming and Soil Protection Against Erosion, Kurskaya Oblast: "Effectiveness of Soil Protective Measures"

/Text/ About 60 percent of the arable land in the RSFSR is located on slopes, whose steepness exceeds 1 degree. Therefore, the entire system of utilization of such land should be soil protective. How to better control water and wind erosion? How to increase soil fertility more effectively?

The introduction of soil protective crop rotations is one of the most important conditions for the solution of these problems. They are now successfully mastered on the experimental production farm of our All-Union Scientific Research Institute, on the Kolkhoz imeni 20 Parts'yezda in Kurskiy Rayon and on the Krasnyy Oktyabr' Kolkhoz in Oboyanskiy Rayon. In all crop rotations good conditions have been created here for a differentiated application of the soil cultivation system and fertilizers with due regard for the biology of crops, degree of soil erodibility and relief. As a result, erosion will decrease to two-thirds or one-half.

For example, on the Kolkhoz imeni 20 Parts'yezda, whose soil is represented mainly by grey forest soil, previously there was a nine-field crop rotation on every slope. In it crops were placed regardless of the relief and erodibility of fields. Sugar beets, potatoes and other row crops were sown on slopes whose steepness was more than 3 degrees. This sharply reduced the harvest and led to the fact that the applied fertilizers were washed away together with soil particles. Four crop rotations with a short rotation have now been introduced on the farm. A four-field grain-grass crop rotation is placed on 3- to 5-degree slopes. Crops are rotated in it as follows: perennial grass, winter wheat, buckwheat and barley with grass undersowing. There is a grass-grain crop rotation on the lower part of the slope adjoining the hydrographic network. Perennial grass is cultivated in the first and second fields, winter rye, in the third and oats with perennial grass undersowing, in the fourth. A grain-row crop rotation--clean fallow and peas, winter wheat, potatoes and millet and barley--occupies the most even fields (up to 3 degrees). A farm grain-corn crop rotation is placed separately.

Thus, crops possessing the best soil protective properties are now cultivated on the most erosion-dangerous tracts of land on the kolkhoz. This will have a positive effect on the yield growth. There are also other benefits. Specialized crop rotations with a short rotation (especially on the upper part of the slope) made it possible to raise the level of intrafarm specialization and concentration of plant growing and to increase land and labor productivity.

Calculations show that, when crops are placed with due regard for the steepness of slopes and soil erodibility, in addition, the kolkhoz will begin to annually obtain 37,000 quintals of corn for silage, 12,800 quintals of potatoes, 7,700 quintals of annual grass and 1,800 quintals of winter crop grain. More than 9 rubles of net income per ruble of additional expenditures will be obtained.

On the Krasnyy Oktyabr' Kolkhoz, where black chernozem predominates, sugar beet is the main row crop. The fields of this farm are even and the slopes are gentler. These features are taken into consideration in land management. A grain-row crop rotation, which occupies approximately two-thirds of the arable land, has seven fields, that is, clean fallow and perennial grass (strip placement), winter wheat, sugar beets and hulled and spring grain crops with perennial grass undersowing. The principle of placement of crops depending on their biology, the slope steepness and the degree of soil erodibility is also observed in this case. Improvement in land management will also produce its positive results on Krasny Oktyabr'.

These and other examples confirm that it makes sense to move part of the crops sharply lowering the yield on eroded soil and poorly protecting soil to even, gentle plots (whose steepness is no more than 3 degrees) with more fertile soil. Crops less demanding on fertility and better at protecting soil against erosion should be "taken out" to plots with steepness of slopes of 4 to 5 degrees and more. This makes it possible to sharply weaken erosion and to increase the production of crop products by 10 to 15 percent. A significant effect is attained without capital investments.

In regions where erosion from storm water and deflation are manifested it is better to use contour-strip crop placement. Narrow-row sowing is most effective on simple single slopes and on fields with a dissected relief. The direction of the movement of units during sowing should correspond to the direction of the locality's contour.

Now let us discuss agrotechnical measures, which of all the methods of soil protection are most effective. Their use on the institute's experimental production farm made it possible to lower the water runoff considerably, to reduce soil erosion and to increase the yield of grain crops from 28.7 to 33.5 quintals per hectare and of sugar beets, from 171 to 338 quintals.

On the Ovtsevod Kolkhoz in Izobil'nenskiy Rayon, Stavropol'skiy Kray, which is in the Armavir wind corridor, crops cultivated according to the traditional technology were often damaged by dust storms and suffered from sikhoveys. Strip placement of crops in combination with soil slitting and cross-slope and contour cultivation with retention of crop residues made it possible to double or triple the productivity of agricultural land. Farming became more stable and erosion soil processes were slowed down sharply.

In order to increase the hydrological antierosion role of cross slope plowing, it is advisable to increase the depth of soil cultivation from 20-22 cm to 27-30 cm (especially under row crops). Deep plowing, primarily subsoiling, on chernozem creates a thick loose layer and destroys the plow sole. Observations by specialists in the central chernozem zone, the Volga area and other regions indicate that with 27 to 30 cm plowing the melted runoff decreases by an average of 5 mm and with 27 to 30 cm plowing and subsoiling, 8 mm.



The slitting of winter crops and perennial grass gives a good result in the control of water erosion. Subsurface soil cultivation deserves much attention. Investigations conducted in Stavropol'skiy Kray and Rostovskaya Oblast have established that, owing to subsurface cultivation, the extent of water erosion decreases and moisture reserves in soil increase by 15 to 20 mm. According to the data of the soil protection laboratory at the Stavropol' Scientific Research Institute of Agriculture, subsurface, as compared with moldboard, cultivation lowers soil erosion on fields with winter crops by 20 to 50 percent and on fall plowed areas, by 20 to 95 percent.

The slitting of fall plowed areas in the Central Chernozem Region, the Volga area, North Caucasus and other soil and climatic zones helps to additionally accumulate in soil 100 to 400 cubic meters of water per hectare and ensures an increase of up to 2.8 quintals in the harvest of grain crops. Slitting in interrow spacings of row crops decreases soil erosion by an average of 3.6 tons per hectare.

Grain crops should be sown only across the slope so that every row of plants may slow down the surface runoff of melted and rain water and detain soil particles. Investigations conducted in Rostovskaya Oblast have shown that sowing along the slope increases the surface runoff on a field with winter wheat by 25 percent and with barley, up to 70 percent.

On areas sown with row crops during the vegetative period it is necessary to carry out antierosion cultivation in interrow spacings (intermittent ridging and slitting).

The introduction of soil protective agrotechnical methods, which is recovered during the first year, is very profitable for farms. They obtain net income of 4 to 20 rubles per additionally invested ruble. According to the estimates of our scientific research institute, by using the simplest soil protective agrotechnical measures, it is possible to additionally obtain 15 to 20 million tons of grain and 5 million tons of sugar beets in the republic. The annual increase in net income will total 3 billion rubles in the RSFSR.

In the set of soil protective measures specialists now assign an important place to forest reclamation. It helps to attain increases in the harvest of crops grown on a protected area and makes it possible to control the precipitation runoff and to prevent soil erosion and retirement. Forest zones with hydraulic earth structures (embankments and ditch embankments) reduce the runoff of melted water by 25 to 35 mm and without these structures, by 10 to 20 mm.

In the Volga and Ural Regions and in Siberia the minimum additional net income per hectare of field protective forest belts totals from 500 to 800 rubles and in Russia's remaining regions, more than 800 rubles. As a rule, capital investments in the establishment and care of field protective forest belts are recovered within 6 to 8 years.

Under dissected relief conditions organizational-economic, agrotechnical and forest reclamation measures do not always give the desired result. Therefore, often it is necessary to intensify the antierosion effect of agrotechnology and forest reclamation with special hydraulic structures.

They are conventionally divided into two groups. The first group includes those that are placed on the water collecting area of gullies, ravines and river valleys. It contains terrace embankments on arable land, stepped terraces on slopes, embankments and ditch embankments in forest belts and mountain ditches. The second group consists of structures set up directly in gullies or on gully-dangerous steep slopes.

Terrace embankments and ditch embankments have become increasingly widespread on arable land in the last few years. Their construction is carried out in Rostovskaya and Kurskaya Oblasts. The reliability of work and the preservation of terrace embankments and ditch embankments increase when emergency discharge in the form of grassed waterways is introduced into their system. Unfortunately, this highly effective method as yet is not introduced into production efficiently. This is due to the fact that modern wide-cut equipment operates worse on terraced fields. However, when terrace embankments are planned and built correctly, machine operating conditions are worsened not to the extent that this method has to be rejected. During 8 years of its study a runoff of melted and storm water was not recorded on terraced plots. Meanwhile, up to 1,000 cubic meters of water per hectare annually flowed from nonterraced plots.

Various crops were cultivated on terraced fields. On grey forest soil during the first year the yield of the vetch and oat mixture was the same as on nonterraced plots. During subsequent years the increase in the harvest of barley grain totaled 2.5 quintals per hectare, of oats, 6.9 quintals, of green corn fodder, 70 quintals and of the vetch and oat mixture, 85 quintals. When additional doses of organic and mineral fertilizers are applied, the increase in the harvest can also be obtained during the first years of mastering of long-term hydraulic structures.

Calculations based on long-term technological charts show that capital investments in hydraulic structures, depending on their type, are recovered within 30 years.

Soil erosion should also be controlled on natural fodder land. As a rule, the grass stand on eroded plots is characterized by a poor quality, weak soil protective properties and low productivity. The further development of erosion on this land can be prevented only with a planned implementation of measures directed toward an increase in its productivity, improvement in the grass stand and reduction of the water runoff and soil erosion.

The soil protective technology of superficial and fundamental improvement in this land developed by our institute makes it possible to sharply increase the productivity of fodder land and to protect soil against erosion. The yield of hay increases up to 55-103 quintals per hectare. This technology envisages plot leveling, cultivation of slopes with due regard for their steepness and thickness of the humus horizon, selection and sowing of a grass mixture and a livestock grazing regime.

In the RSFSR fodder land on an area of 36.5 million hectares now needs antierosion protection. A total of 6.6 million hectares of them need a fundamental improvement and 29.7 million hectares, a superficial improvement. The implementation of these measures will make it possible to double hay production and to additionally obtain approximately 67 million tons of hay. In the Central Chernozem, North Caucasus, Ural, East Siberia and Far East Economic Regions the expenditures connected

with a fundamental improvement are recovered within periods from 3 to 5 years. In other economic regions these periods range from 1 year to 3 years. In the North-West, Central, Volgo-Vyatka and Volga Regions capital expenditures on a superficial improvement are recovered within a period of up to 3 years.

The greatest return on capital investments in antierosion reclamation is attained when protection against erosion is carried out in an overall manner and on entire water collecting areas.

Unfortunately, the situation with the coordination of soil protective operations as yet is far from the best. A total of 12 subdivisions and enterprises belonging to five ministries and departments engage in the protection of soil against erosion. However, there is no one among them that would be fully responsible for the condition of soil and could implement a set of soil protective measures on large water collecting areas. True, kolkhozes and sovkhoses more and more often begin to envisage antierosion measures in their production and financial plans, but these measures are not of an overall nature and often are not implemented fully. Even for strong farms it is extremely complicated to control erosion and to implement measures encompassing entire water collecting areas--there are no highly skilled specialists and modern equipment.

Apparently, the time has come to establish a network of specialized interfarm enterprises or mobile antierosion reclamation columns in the republic. They could build all types of hydraulic structures on large water collecting areas, to fill in and flatten out gullies, to draw wasteland into the economic turnover, to improve natural fodder land on ravine slopes and to repair hydraulic structures.

The experience of the Moldavian SSR also confirms the usefulness in the establishment of such enterprises. Interfarm antierosion reclamation associations have been organized in a number of the republic's rayons and enterprises of the types of mechanized mobile columns for the control of soil erosion are being established in the system of the Moldavian State Cooperative Scientific Production Association for Agrochemical Supply of Agriculture. The long-term practice of their operation shows that interfarm cooperation and organization of specialized enterprises are some of the advanced forms of organization of antierosion measures. They help to increase the efficiency of agricultural production.

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